

# The Mining And Metallurgical Journal

VOL. XVIII. No. 5

LOS ANGELES, CAL.,

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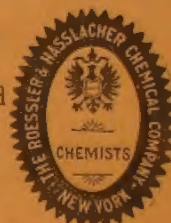
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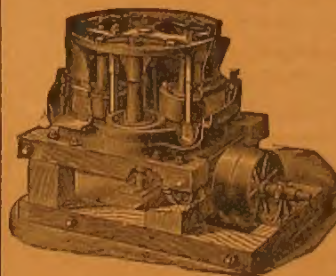
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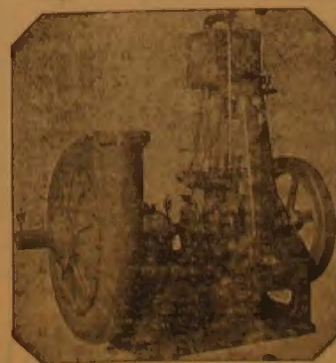
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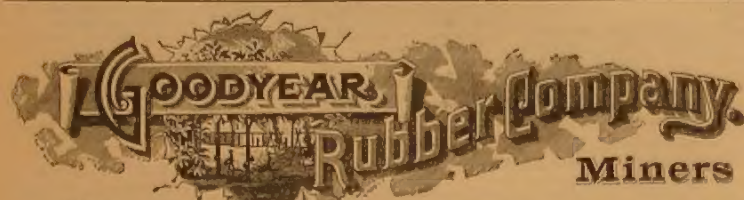
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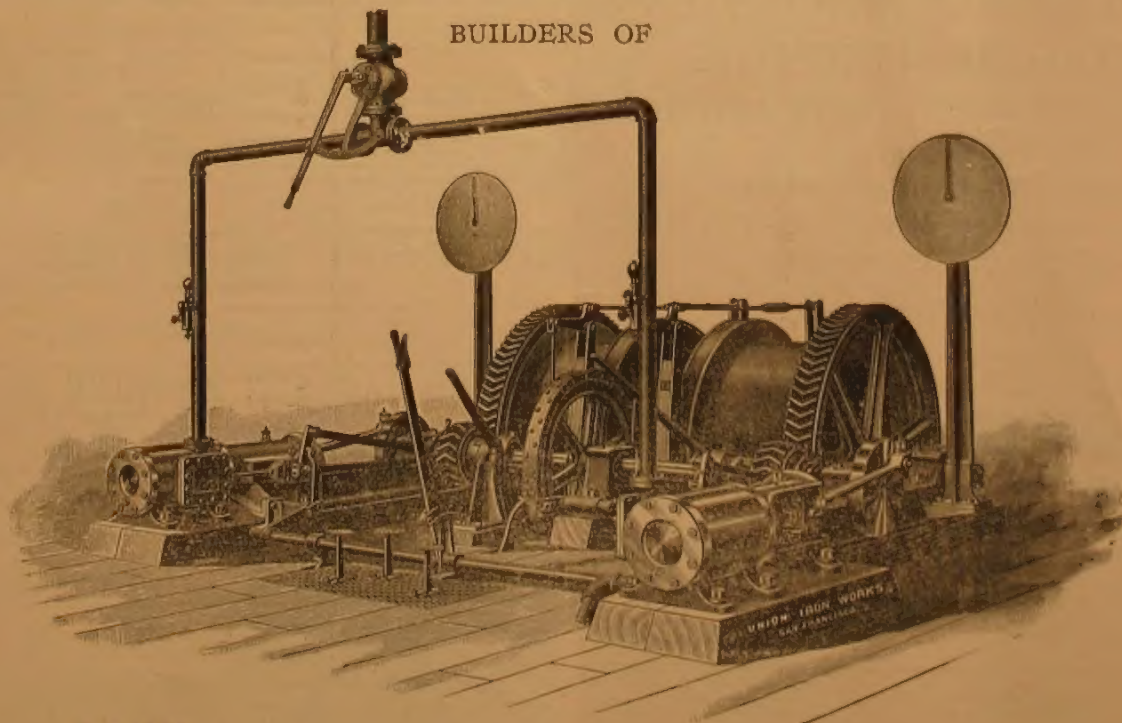
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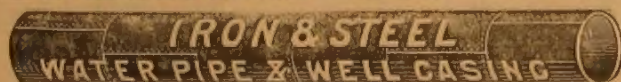
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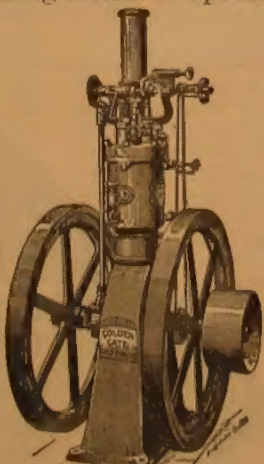
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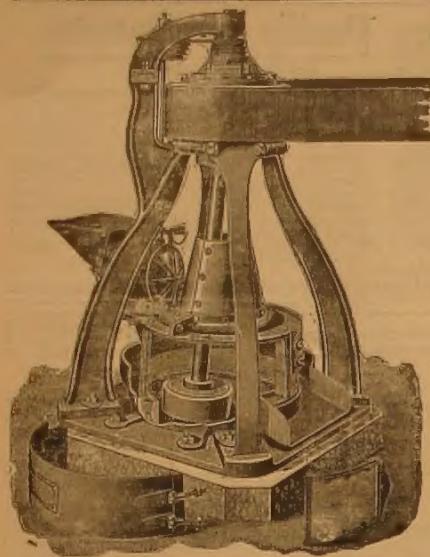
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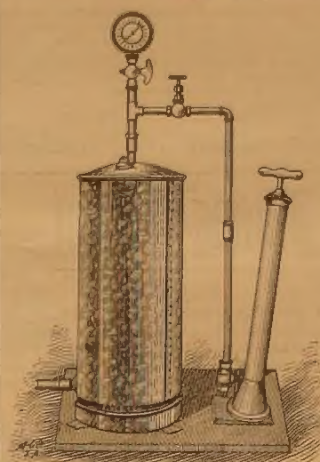
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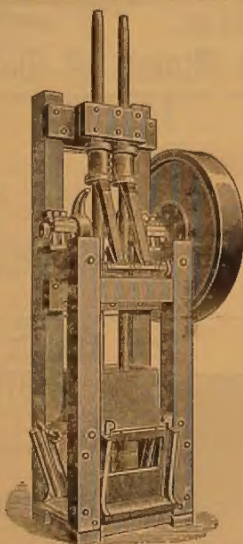


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SPECIAL REPRESENTATIVES:

The Journal is kept on file at the following places where contracts for advertising can be made:

Denver, Colorado—Ed. P. Rippich & Co., 47 Bank Building.  
Kansas City and St. Louis, Mo.—C. M. Veazey, 430 Nelson Bldg., Kansas City, Mo.  
Chicago, Ill.—E. Sprague, 50 Dearborn Street.  
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ADVERTISING RATES FURNISHED ON APPLICATION.

## THE NICARAGUA CANAL

Is one of the most important necessities to the mining interests of the Pacific Coast States. The cause of this is the high and prohibitory freight rates by railway lines on low-priced mineral products to the eastern and European markets. The Nicaragua Ship Canal would reduce freight rates, and make trade possible in many lines at present not worked for this reason. To such an extent would this trade revolution occur that the railway companies, in place of opposing this measure, ought to welcome it. The first requirement, after a mineral of industrial importance is found, is a market for its sale. Such minerals as are of high value, as gold, silver and rich copper ores, or matte, and a few others of small amount, are only the class which will bear high freight charges. While on the other hand, low grade copper ores, lead, iron, manganese, chrome iron ore, magnesite, pyrites as ores of sulphur, nickel, cobalt, etc., asbestos, asphaltum and building material for ornamental use, would be articles of export to a large extent, and give an equally large amount of business to the railway companies. The impetus such a measure would give to all branches of mining in the west cannot be overestimated, for it would create a new world by the acquisition of a world's market for our rich and undeveloped mineral products in lines not at present operated. The advent of the railways themselves on this coast alone can be compared with the stimulus a canal across the isthmus would give to our trade from the interior to the Pacific Coast. If the railways of the Pacific slope had the enterprise and business ability at their head that the railways of Colorado manifest towards the mining interests of that state, a canal would have been already built.

The commerce of England, by a foreign and colonial policy of which the United States once formed a part, and if the United States ever intends to be a great commercial people, they must have a foreign policy for trade and sending civilization into the islands of the Pacific and the vast territory of South America. The commercial inclination and advancement of our people already demand such a policy of trade extension, and in aid of that measure, the early construction of the Nicaraguan canal is required. The distance and isolated position of the United States from the markets of the east, ought to be a sufficient reason for the eastern states taking an active interest in its construction as a national work ; but, with the extra reason of increasing our foreign trade, the necessity yearly becomes more pressing. The importance of Alaska, as a mineral producer, is a further reason for its immediate construction.

## MINING ON INDIAN RESERVES.

Recent discoveries of gold in the Wichita mountains in Oklahoma are attracting thousands of prospectors to the new field, which adjoins and may include parts of the Kiawa, Comanche, and Apache reservations. The policy of the government has been to reserve all minerals on Indian Reserves along with the surface soil and prohibit mining on such land. The recent discovery is another instance that with the civilization of the Indian, the first step towards that end—of herding the Indians within the limits of the reserve—has soon to be succeeded by opening the reservation to others as prospectors and miners. Such an act is not a hardship to the Indian who desires to be industrious and earn money in the employ of the miners. It gives the Indians a home market for the surplus produce they raise, and is the best means of bringing them within the influences of civilization, and in making them self-supporting, and not a charge of the government. Men who prospected there for years, prior to the recent expiration of the lease under which the lands were held by the Indians, are agitating the early opening of the reservation. This is not the only recently discovered gold district which ought to be opened to the prospector on Indian reserves. The San Carlos Reservation, in Arizona, is another mining field which ought to be opened to the prospector. It is in close proximity to the copper camp of Globe, and would greatly benefit that district in the matter of railway facilities. It would open up a large coal area in a district where cheap fuel is needed to aid the mining and smelting interests of the Southwestern States.

The opportunities for the storage of water for irrigation and mining use would be increased by such a beneficial measure to the Indians themselves, and all that section of Arizona. Reserves have their time and their use, but must eventually give place to the steady advance of progressive life, in changing the now unproductive hunting ground into the sphere of industry and comfort, by the untiring efforts of the prospector and miner in developing the minerals within their limits. It brings the Indians more closely in touch with civilization, by offering to them that diversity of employment which they require. It is, however, the youth of the tribe who benefit most by the contact with American people; for, in opening the Reserve a speedy change is accomplished on the young people by the example and teaching of the school system, which is sure to follow the discovery of a new mining camp.

The reserve of minerals on Indian Reserves is a form of monopoly which benefits no one, for the Indian has to be well advanced in civilization before he will overcome his superstitious dread of a dark hole in the ground, nor will he tell of his having found minerals, except in rare cases. The reserve of minerals is of no benefit to the Indian, and the opening of them to prospectors and miners is a measure in his favor.

THE MANUFACTURE OF GOLD.

For a hundred or more years, the exact science of chemistry has proved the futile searches of the alchemists for the process and means of making gold to be an impossibility. Gold we were taught was an elementary substance, which it was not possible to manufacture, except to extract from ores holding gold, and the secret of its existence and composition was summed up in the words: that gold was always gold and could not be made, and that it changed only in the condition known as coin. The transmutation of metals was classed along with the search after the discovery of perpetual motion, as a proceeding contrary to the laws of nature, as formulated in the chemical text books. But all that teaching is about to be numbered among the errors of the past and of a ignorant age.

Dr. Stephen F. Emmons, of New York, several months ago, intimated that he had manufactured gold from silver as a scientific experiment, which was to be enlarged to a trade proposition when suitable machinery had been manufactured, and further developments are now past due. But of more recent date, the news comes from Chicago that alchemist E. C. Brice, of that city, has found the long sought for discovery of the earliest chemists, and has accomplished the feat of making gold from antimony. He intimates that on the last day of November he was to have 530 ounces for shipment to the Bank of England. The Keely motor, as a gold extractor has been eclipsed by a chemical process, in which the despised antimony of the miners and smelters is said to be the material with which to produce the golden pigs, of which Saint Anthony is said to have been the first inventor of the process, but who failed to secure a patent for prior discovery. The effect of this wonderful discovery has not been so great as to decrease the demand for prospects and gold mines as an investment, nor has the market value of gold changed, neither has it disturbed the Stock Exchange. The price of antimony, and prospects and mines producing such ores are sure to be in demand in the near future, and this discovery may have a serious effect on the craze for going to Alaska in the spring, to dig frozen gold in an arctic river bed; for it is better to stay with civilization and mine antimony in a mild climate.

## THE MONEY QUESTION BEFORE CONGRESS.

The impending session promises to be a spirited one, on account of the important questions which will be presented for consideration, and probably none will be more earnestly and exhaustively discussed than the money question.

The country has been giving more than usual consideration to the subject, and views are widely divergent. The advocates of free silver coinage will doubtless have their say, it is but one feature of the contest. We do



not look for any legislation in recognition of silver unless Congress should conclude to adopt the proposition of Senator Carter, of Montana, which provides for the retirement of all notes under ten dollars, and making silver tender for all debts and dues under that sum.

There is a contest over the retirement of the greenbacks and treasury notes, Secretary Gage and the bankers' committee favoring it, and others of the gold standard class oppose it, among them is Trenholm, former controller of the currency. He is in favor of fusing the two classes and substituting new and uniform notes, to be issued in sums of one, two and five dollars.

Changes in the national banking law are agitated, and it is not improbable that something may be done in that direction, though there is strong opposition to giving the banks control of the volume of currency.

It is not at all probable that there will be any talk about an international agreement, though Mr. Trenholm favors an agreement among silver-producing countries to steady the price of silver. He also favors holding the silver in the treasury, coin and bullion, as a reserve to protect the outstanding silver certificates, which in his plan are to be made par with gold to the full amount of their face value.

The country will watch the proceedings of Congress on the money question with deep interest.

### IS GOLD PLENTIFUL?

Since gold has been made the sole measure of value by the nations of Europe, the United States and some of the Asiatic countries, the question as to the quantum in existence has become important. It has been maintained by the friends of the double standard that there is not gold enough to supply the needs of the world's commerce. It is true that there are subsidiary or token silver coins in all the gold standard nations, and that notes are employed; but the idea has been taught and generally prevails that paper money is merely representative, and faith in it depends upon the ability of issuers to redeem it with metal money.

Gold production for coinage has not kept pace with the growth of commerce; for, although for the last fifty years, it has been greater than ever before known, consumption in the arts and manufactures has increased more rapidly even than commerce, for the reason that gold is more sought after as people become more wealthy. Dentistry has become a source of no inconsiderable exhaustion, and the increase of consumption in ornaments has become immense.

Dr. Soetbeer, recently deceased, was the ablest statistician in regard to the precious metals, and he asserted, just before his death, that the gold money in the world, meaning both coin and bullion, was equal to but two-thirds of the gold production in the previous forty years, and that period embraced the immense gold production in California, which from 1847 to 1895 amounted \$1,283,000,000, and also the greater part of Australian production. Previous to that period of forty years, gold had been produced as far back as we have any history of the world, and from the time America was discovered, gold production had been greater than since the mines of Ophir and Ormus had been exhausted. During that period of forty years, South Africa yielded considerable gold,

It is probable that not more than half the gold mined during the last century entered into coinage or was retained in bars and used as a measure of value in large transactions. There cannot be accurate statistics through melting, wear, sinking in the sea and otherwise. Dr. Soetbeer held that the time was not distant when gold would disappear from use as a money metal. During the time of the immense production in California and Australia, it was thought it would be discarded on account of its abundance; but, whatever redundancy was apprehended, was not realized, for it never existed, or it disappeared so rapidly as not to create an alarm that gold would become too plentiful and cheap.

No nation is overburdened with it, on the contrary, the principal ones are struggling to acquire it. Germany and England, to avoid depletion, often place checks upon its exportation. Whatever may be the production in the Klondyke, there is no danger that gold will become redundant, for both commerce and consumption in the industries will prevent it.

## CORRESPONDENCE

### CALIFORNIA

(From Our Special Correspondent)

GARLOCK, Cal., Nov. 23, 1897.

Mr. Glesch, who bought the Clifton mine of Garlock, is opening the same in first-class style. We expect great things from this mine.

One hundred tons of ore from Mojave are to be milled and cyanided here next week for a test; if successful, a contract for 1000 tons will be let at once.

Five stamps more have been put in the Oakland Co.'s mill, and they are now at work.

Some remarkably rich strikes have been reported from the Panamint and Slate Range country, showing beautiful specimens of free gold.

It is feared that Johannesburg will take Garlock's Panamint trade when the railroad is finished, but with coal at \$7.50 per ton, and water free, we can always mill the ore of this country at \$3 to \$4 per ton and get the work.

The new mining law is operating beautifully and is developing the country more than any other one thing that has happened. In another year the old "hold-with-monument" law will have lost its grip, and thousands of good claims will be open to good people to locate and operate.

Wm. Ross & Co., of San Francisco, are opening a fine copper property near the Mammoth and the coal mine. There is no mine in the world like a good copper mine near a coal mine.

OLD COR.

VIRGINIA DALE, Nov. 20, 1897.

(From an Occasional Correspondent)

The Star King mine is fast becoming one of the best prospects in the district. It now has a shaft one hundred feet deep with one hundred feet of drifts which show a fine body of ore in every part of the mine.

Mr. A. E. Saxton recently bought this claim from Mr. Botsford of the Brooklyn mine. Mr. Saxton thinks a great deal of his mine and is pushing the development as fast as possible.

G. H. Harn has returned to camp and is personally superintending the work on his O. K. mine. The O. K. is one of the largest,

and according to the assays, one of the richest ledges in the camp.

Among the most prominent properties in the district is the Gold Basin group, which consists of ten claims, all adjoining each other, and containing fifteen distinct and well defined ledges assaying from \$10 to \$266 per ton. There are several shafts on these ledges ranging in depth from ten to one hundred feet, and the deeper, the larger the ledges, and the best ore is found in the bottom of the deepest shafts. Mr. Isaac Reed, the principal owner and superintendent of the Gold Basin mines, has just completed an arastra on the mines and is working some of the free milling ore obtainable, which he expects to yield \$25 per ton.

Mr. Reed also has a good road built in the mountain and is now camped on his mines, and can drive all over each and every claim.

Herley & White are digging a well in the big wash five miles south of Dale City, and expect to get water very soon. If they are successful it means a great deal for the district, as the well will be right among the mines and almost in the very heart of the district.

Mr. Wellington, of Hardy & Wellington, of the Voglebob mine, has gone to Los Angeles for a few days on business.

Porter Davis and J. C. Goff are now camped in Gold Basin. They have located some extensions on some of the Gold Basin claims and are doing assessments on them. These gentlemen also in connection with Capt. Covington of Redlands and Frink Bros. of Old San Bernardino, own the Wallthall claim, located three-quarters of a mile west of Gold Basin. They report that this claim, with fifteen feet of work, has developed into a \$15,000 mine. And the rock they bring up to Gold Basin to horn fully justifies all their assertions. They expect Mr. Covington and Frink Bros. every day, and as soon as they arrive the boys expect to start down on the Wallthall, "DALE MINER."

### TUOLUMNE MINES.

(From Our Special Correspondent)

#### MOTHER LODGE MINE.

The main shaft is now sunk to a depth of 1300 feet. The various levels aggregate over 3000 feet in length. The work in the future, and the ore from the mains, will be all taken from below the 500 foot level. The ore bodies average 35 feet in width, a great deal is of high grade rock. When the electric plant, now being constructed at the North Fork of the Tuolumne River, is completed, the full force of 40 stamps will be kept continually employed, crushing 2½ tons to the stamp. But the present capacity of the mill is inadequate to crush the rock that is so fast accumulating in the chutes and ore bins that the management intend adding 60 more stamps—this step is a necessity under the conditions above named. The chlorination plant is in continuous operation, which means a reduction of 6 tons in 24 hours.

#### THE TARANTULA.

The above mine is busily engaged setting up their hoisting plant, which will be completed by end of month. The grading being finished, which was quite a large undertaking, but a very successful one as regards cost in every detail. The main shaft is over 150 feet deep. Sinking will soon be resumed, in the meanwhile, levels have been run, cross-cutting and exploiting the veins. An underground survey has just been completed by engineer J. G. Hopper, and a skeleton work-



ing plan prepared, which will be filled out as the works underground progress. This method should be adopted in every mine. Many managements are very careless in this respect. The ore on the chutes is rich and very extensive. The future of this property is assured from present indications.

#### THE ALAMEDA.

This mine is sending to grass daily rich rock. The ore dumps are assuming large proportions. The ore body is very large, fully 30 feet wide at the 500-foot level. The president of the company, from Chicago, has been paying the mine a visit the past week. He is exceedingly well pleased with the present and prospective view of his company's property.

One of the finest roads in the state is being constructed from Jamestown's present terminus of the Sierra R. R. to the Rawhide and adjacent mines. Erickson, the railroad contractor, is building it. His next work is to construct a boulevard road from Sonora.

ARGUS.

### BRITISH COLUMBIA

(From Our Special Correspondent)

VANCOUVER, B. C., 20th Nov., 1897.

EDITOR JOURNAL: The resources of British Columbia as a great mining country have been known to the people here for a great many years; but, as is the case in all mining districts, you have to prove your properties before you can attract the attention and capital of the outside world.

A great deal of money has been spent in doing this; but it now looks as if the desired end had been attained, and those people who have for years past been continually paying out money, have at last reached that point where their properties will in future not only carry themselves but will begin to return handsome profits to their owners; especially is this noticeable in the Trail Creek district, where for years past a great deal of money has been spent in development work, but the results are now becoming apparent, as it is almost a daily occurrence to find some new property added to the list of shippers. This fact is not ignored by the outside world, as can be seen from the fact that in Rossland today there are a great many representatives of large English and American syndicates looking for properties, and during the past few months a great many large deals have been consummated.

During the past week, there were at least 150,000 shares of the higher-priced stocks sold on the London market.

The Slocan, undoubtedly, will show up well during the winter, as the snow has now come and rawhiding will be commenced from all sections of the country.

The Fairview and Lilloette camps have yet to prove themselves what they are thought to be; but this will not take long now, as the Tin Horn mine in the former and the Golden Cache mine in the latter have their stamp mills running, and people who are in a position to know are confident that the results from both will be highly satisfactory.

The result of the final cleanup of the Cariboo Hydraulic Mining Company has just been announced, it is 332 ounces, of the estimated value of \$5,707, making the total yield for the season just ended of \$139,000, or \$12,000 more than in 1896.

PERCY W. CHARLSON.

### Miscellaneous Mining News.

#### ARIZONA.

The Gladiator, near Prescott, is now considered one of the most promising mines in the Bradshaw range. There are six tunnels in on the property. The lower tunnel is 653 feet in length, and from it and the stopes is taken the ore that keeps the mill running. A double compartment shaft is being sunk at the end of the lower tunnel, and at a depth of fifteen feet the best ore yet taken out, and carrying the highest assay value, has been discovered. At present the force is about forty-five men, working in three shifts of eight hours each. The mill runs steadily and does good work. The President of the company is Byron E. Shear, of Denver. A. Falco is manager, H. Blauvelt superintendent, E. Greenwood is foreman of the mill and W. Lipps foreman of the mine.

The Crowned King mine is one of the great mines located in Arizona near Prescott, and produces something like \$186,250 per year, which averages \$28.85 per ton of ore extracted. The mill is substantially built, and is certainly the best equipped 10-stamp mill in the Bradshaw mountains. The officers of the company are: N. C. Shekels of Los Angeles, president; J. M. Taylor, of Taylorville, Ills, secretary; Geo. P. Harrington, superintendent and treasurer. The company is known as the Crowned King Mining Company, and has a capital stock of \$6,000,000. The mill handles from 20 to 25 tons of ore a day.

Chas. Price is running an arrastra on one of his gold mines in the neighborhood of Signal, Mohave county, and taking out a little bullion. Mr. Price has some good property that would pay well with a big reduction plant on it.

J. W. Gerritt has bonded the Todd mine, Todd Basin, Mohave county, from A. E. Davis for six months. The Todd is a vein running parallel with the Oro Plata, and is a good property.

#### COLORADO.

Messrs. Ryan and Stewart Bros., who are operating on the Revenue property on the west slope of Bryan Mountain in Boulder county, shipped 1900 pounds of ore last week to the Kelton Extraction works in Boulder. This ore was taken from a 15-foot shaft and returned \$76.50 net.

The Kaiser William and Prince Bismarck claims on El Dorado Mountain, and the Count Von Moltke, Unser Fritz, Frederick the Great and Great Elector claims on Mineral mountain in Boulder county, were incorporated last week under the name of the German Empire Gold Mining Co. These prospects were recently purchased by B. Kalbfus of Berlin. Extensive development work will be carried on this winter under the management of J. P. Mayner.

A certificate of the articles of incorporation has been filed in the office of the county clerk of Gilpin county and recorder in Central City, of the Perigo Gold Mines Company. The incorporators are Irving T. Bush, R. G. Simonds, Frank Brooks, J. C. Dickey and J. R.

Quigley. The capital stock is \$100,000, and the company will have an office in Central City, Colo., with main office in New York City. The above company has been formed to operate the well known Perigo group of mines in the Hawkeye mining district.

Drifting is being carried on in the east and west levels of the Golden Cloud mine in Russell gulch, Gilpin county, with satisfactory progress. Shipments of about fifty tons of mill and smelting ore were made last week, says Manager Eby, the smelting ore giving returns of \$80 per ton, the mill ore being of a fair grade. The management are making preparations to resume sinking at an early date, with the intention of sinking at least another lift.

According to newspaper accounts the Emena mine, one of the largest producers of the Rico district in Dolores county, has been sold to a Boston syndicate for \$150,000, and the first payment is now in the Rico bank. The mine has been a good shipper for the past seven or eight years, and during the past two years has been worked profitably by leasers. The new owners will put in an extensive plant, and will commence work at once.

We are in receipt of a copy of Brown's Manual of Assaying, which has been forwarded to us by the publishers, E. H. Sargent & Co., of Chicago, Ill. This work is now considered by all as an authority on assaying. It is generally used as a text book in mining schools and colleges, and wherever assaying of ores is taught. The present edition is especially full and complete. It describes and illustrates new forms among the apparatus, and the values of the latter are now given both in American and English moneys; the crucible process now extends to ninety pages; in the scorification process, detailed charges in assay tons, grammes and grains, with a colored scorifier plate; new and complete articles on the assay of gold and silver bullion, gold and silver ores and minerals, tin assay, revised charges in the lead assay; volumetric analysis of copper ores; specific gravity of minerals, etc., etc.

The book contains 533 pages and 132 illustrations, and is printed in large, clear type on good paper, bound handsomely and durably in flexible covers, of a size convenient either for the pocket or the library shelf. It will be a most valuable addition to the library of every one, however little interested in assaying or mining.

The Colorado Iron Works Company reports the following shipments of mining machinery:

Two carloads smelting machinery to Desobridora Mining & Smelting Co., Mapimi, Mexico.

One carload mining machinery to Kilton Gold Reduction Co., Florence, Colo.

One carload mining machinery to Moon Anchor Mining Co., Cripple Creek, Colo.

One carload water backs for smelter to El Paso Smelting Works, El Paso, Texas.

The Pasadena and Klondike Mining Co., of Los Angeles, which recently organized and incorporated with a capital stock of \$250,000, and a full list of officers and directors, have just opened an office in Room 26, Muskegon Building, cor. Third and Broadway, Los Angeles. They are meeting with good success.



## SOME NOTED CALIFORNIA MINES.

While nearly all other industrial pursuits are stagnant and unprofitable, that of mining seems to have proven profitable and remunerative during the past few years. Statistics show that of all the industrial occupations mining is the most profitable.

The average annual product or earning per capita in California of those engaged in farming is about \$300; in manufacturing, including its bounties, about \$1,000; in mining, with all its burdens and penalties, nearly \$1,500, and yet many people denounce the business of mining as comparatively precarious and unprofitable. An increase of about 40 per cent of men employed in mining has been recorded for the past few years.

## PLUMAS COUNTY.

Though this county has a large number of good mines, it has not received the attention of capital that some of the other counties have, but it has a bright future. There are many evidences that Plumas county will experience great mining activity in the immediate future. Indeed, the activity has already been inaugurated. There is now more going on in the mines tributary to Quincy than for many years, and if present indications are borne out by developments, more miners will be at work next year than this county has known since the pioneer days. The mines are not confined to quartz or placer, as in some counties, but embrace nearly every class of mining known. Principally, though, the mines are quartz placer drift and hydraulic.

The tailings works of the Alturas mine on Slate Creek, three miles southeast of La Porte, is considered one of the best arranged and most economically handled plants in California. The mine consists of  $5\frac{1}{2}$  miles on the bed of Slate Creek, with an average depth of 20 feet of tailings. Bedrock cuts have been run to straighten the channel and gain grade, and the spring freshets are utilized for concentrating the material which is washed through flumes set on a six-inch grade and supplied with Hungarian riffles. Twenty-five men are now employed, but it is the intention of Messrs. Packer and Henkel of La Porte to put more men at work soon.

The Gladiator mines, consisting of the Sunnyside mine of 160 acres, and the Franklin, 180 acres, Beckwith, etc., are drift mines located at the south end of McRae Ridge, nine miles west of Johnsville. These mines have been extensively developed, and have proven to be very valuable.

A good deal of the ground could be worked to advantage by hydraulicking if the facilities

for impounding the debris were favorable. For three months in the year snow water is available through a ditch  $1\frac{3}{4}$  miles long, 2 feet wide and deep, with  $\frac{3}{4}$  inch to the rod grade. From twelve to fifteen men are employed.

Plumas county has about twenty-four stamp mills, ranging from five to sixty stamps each, all of which have rather heavy stamps, some weighing 1000 pounds.

Water power is the principal energy used to operate the mills.

There are seven or eight concentrators in

tion in Riverside county. Now the desert has the attention of capitalists. The Virginia Dale district, near the line of San Bernardino county, has some of the best mines in Southern California. Among the most prominent mines in the desert is the Desert Queen, about 65 miles east of Banning and 28 miles north of Indio. It has been superficially worked quite extensively during the past two or three years. Some of the quartz has been so rich in gold as to cause the most extravagant reports of the value of the mine. The rock is crushed in a 5-stamp mill located near a well

six miles from the mine. A small force is employed. C. M. Thompson of Pasadena is the owner, and H. C. Steele of Banning is the superintendent.

The Gavilan gold mines, owned by an English syndicate, are located about  $8\frac{1}{2}$  miles northwest of Perris. There are twenty-seven claims in the group, upon which considerable prospecting has been done, and on the Riverside mine, which is the principal mine of the group, they have a 300-foot shaft and good ore in the bottom. A 10 stamp mill has recently been erected for this property.

The Hexahedron mine, located 25 miles northeast of Indio, is considered a very good mine, there being a good grade of gold bearing rock.

One of the gold producing mines in Riverside county is the Lost Horse mine, owned by the Lost Horse Mining and Milling Company, an incorporated company of which the Ryan brothers and S. M. Kelsey are the incorporators and directors. Development work has been continuously prosecuted for the last two or three years. The main shaft is over 500 feet deep and considerable development work has been done. The ore shoot looks better with depth. About one year ago a rich ore body was opened up under the old workings. The mine is one of the best in Southern California. Nearly all of the gold has been extracted from the ore with a 2-stamp mill located five miles north of the mine near some springs. But recently the company purchased the 10 stamp mill of the Boulder Mining Company and moved it to the mine, where it is now pounding out the

yellow stuff.

In the eastern part of the desert is the Eagle Mountain mining district, which has come to the front wonderfully in the past year. The Chuckawalla district has a great many good mines which only need capital to develop them. The Monte Negros district lies about fifty miles northeast of Walters Station between Virginia Dale and the Eagle Mountains. Within the past year or so two mills have been built on the Virginia Dale side of the district, where water is obtained by sinking wells in the desert valley. On the south



TAILINGS WORKS OF THE ALTURAS MINE

operation, and two Gold King Amalgamators.

Six arastras and two Huntington mills work the ore of the Black Oak, Cleveland, Diadem, Frazier, Genesee Valley, Mountain Chief and Sonoma mines. The Frazier mine is also equipped with a Triumph Concentrator.

## RIVERSIDE COUNTY.

In our issue of April 1st, 1895, we gave a description of the mines of the Pinecate district near Perris. This district was then attracting more attention than any other sec-



side no water has been found nearer than Cottonwood Springs, 25 miles distant. Ore is now being hauled from the claims on the south side of the district to an arastra at Cottonwood Springs. These claims are the Columbus, Porcupine, Republican, Summit and Venus. Shallow shafts and short tunnels have been made on each. There are a number of small stamp mills in this county and two or three arastras and one Huntington mill.

#### SACRAMENTO COUNTY.

The resources of Sacramento county are both mineral and agricultural. With the decadence of the former there has been a steady development of the latter. The mineral industry is confined chiefly to the placer and drift mines along the lower foothills from the American and the Cosumnes River.

In addition to these may be mentioned the extensive quarries of granite and macadam at the Folsom Prison. The county is well wat-

ter. There are many latent resources in the county, which will be developed when better or cheaper transportation facilities are afforded.

Among the most prominent mines in this county is the Rose mine, located 45 miles northeast of Victor. Robert F. Harrison, the noted mining man of Denver, Colo., is the superintendent, and developments have proven that the ore is very rich. The main shaft is now down between 600 and 1000 feet. Ore assaying \$350 per ton was recently discovered at 850 feet with a four foot vein. The ore becomes richer as the mine goes deeper.

The Dry Lake district is 55 miles east of Victor. Some prospecting is being done in this district, but no mines of consequence are in active operation.

In the eastern portion of this county are several districts where mining is carried on in a more or less desultory manner. The ores are mostly of good grade, but the cost of

of Vanderbilt. The veins contain gold and copper.

In 1894 some rich gold quartz was discovered in Shadow Mountain district, about 50 miles northwest of Vanderbilt. There is practically no mining operations in this district.

Old Woman's Mountain district eight miles southeast of Danby is well known. Veins of gold and silver ores and also silver lead ores, are found in this range. A group of claims is being worked at the north end of the range—the Courtright and McDonald mines—located 15 miles south of Danby on Old Woman's Mountain. The principal vein is one foot to three feet wide, on which a 200 foot tunnel has been driven, and a 100 foot shaft is now sunk on the property.

The Silver Mountain district is commonly known as the Oro Grande district, though organized as the Silver Mountain district. It embraces a large territory, and include gold, silver and copper mines and marble and gran-



UNCLE SAM MINE AND MILL, SHASTA COUNTY, CAL.

ered both by streams and subterranean sources.

#### SAN BENITO COUNTY.

This county is not considered of much importance. The mineral industries which promise well for the immediate future are lime and quicksilver. Antimony, coal, chromic iron, copper, gold, gypsum, iron manganese and petroleum occur either in too limited quantities or are too far from transportation for their profitable exploitation.

#### SAN BERNARDINO COUNTY.

The past three years has witnessed an increasing interest in mining affairs in this county. A number of new mines have been discovered in the Mojave Desert region, and mills have been moved from old inoperative mines to newer ones. Several prospecting mills have been built for the purpose of testing properties, and a vast amount of prospecting is being done in both old and new

water is usually more than correspondingly high. The most prominent among these districts are Exchequer, Ibex, Ivanpah, Mescal, New York, Old Woman's Mountain, and Shadow Mountain.

Exchequer district is located 15 miles north of Homer. Some prospecting has been done in this district within the past three years and some new claims located, but no mines are in active operation at present.

Ivanpah district is 25 miles north of Vanderbilt. The district became famous some years since by reason of the discovery of high grade silver ore. Gold prospects have been found more recently and prospectors are at work developing some of the mines.

The Lava Beds district is located 36 miles east of Daggett. Most of the mines are silver and copper producers, but gold claims are also located.

Southwest of the Ivanpah district is a section where activity is showing itself. It is the Mescal district, located 20 miles northwest

ite quarries. There are several mines in the district shipping lead silver and "dry" gold ores.

There are nineteen stamp mills in this county, the most of which are in operation. The principal power is steam, some gasoline engines are employed and the Oro Grande 100 stamp mill is run by water. Besides these mills there are four Griffin mills at the California Portland Cement Works, and The Needles Reduction Works has a Bryan Roller Quartz mill.

#### SAN DIEGO COUNTY.

This county has shared liberally in the increasing interest in mining affairs within the past three years. A large portion of the county consists of desert, but in nearly every hill and range rising above the barren sandy plains are found veins and ore deposits, some of which are phenomenally rich in gold. The Golden Cross Company own a large tract of mineral land in the Cargo Muchacho Mount-



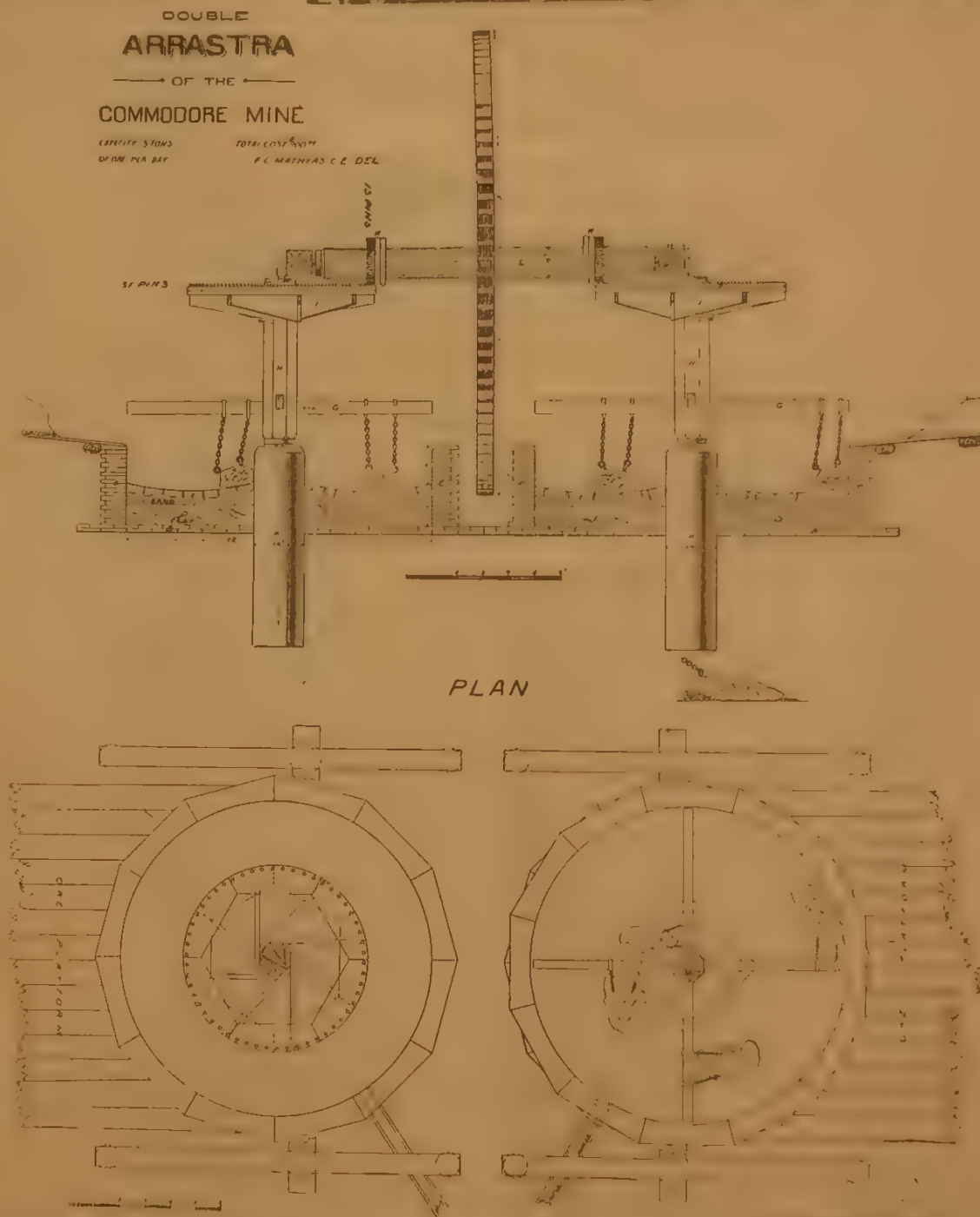
aus, and a few years ago added a 100 stamp mill to their already large plant of 40 stamps. This property, situated in the Colorado Desert, has attracted much attention from outside the state and in the vicinity a number of new enterprises have been inaugurated.

Encouraging results have been obtained in

Escondido there has been considerable prospecting done on large deposits of mineralized rock. The valleys of this county, which lie between Cuyamaca range and the ocean, are the most picturesque and are of unsurpassed fertility, and horticulture is of much importance. The region along the coast enjoys the reputation of having the most phenomenally

about 100 feet to the mile. The primary cause of the trouble, which occasioned the shut down seems to have been the malfunction of the pumping machinery and poor management.

The Elevada mine, located 10 miles south of Banner has been opened within the past two or three years. The shaft is 160 feet



the Picacho district, 30 miles north of Fort Yuma, on the Colorado River. In that portion of the desert lying north and east of the S. P. R. R., numerous prospectors are scouring the mountains in search of new veins, or working on those already discovered.

The Julian district and the various mining fields along the Cuyamaca range continue to add to the output of gold. In the vicinity of

equable climate in the state.

The California Picacho mines are 60 miles by river above Yuma and 27 miles north of Fort Yuma in Picacho Basin. The expensive pumping plant is located within a few yards of the Colorado River. The mines are situated 500 feet higher and four to five miles back from the river. The pumps proved inefficient. The sluice grade is light, being

deep. Two levels have been run at a depth of 50 feet and 100 feet respectively which expose a vein two feet to eight feet wide. The quartz is very fine in grain, considerably stained with iron and manganese oxide and is crushed throughout into small pieces, being found pulverized in many places.

The White gold lode is located 30 miles north of Yuma and four miles east of Picacho.



The hills of the basin are rugged but not high. The rocks of the basin are diorite, phthanite, mica schist, hornblende schist, granulated dikes and felsitic eruptive. A very large number of claims have been located, but as yet only a little work has been done. Stephen W. Dorsey, ex-United States Senator, has just recently induced English capital to take hold of some properties which he secured from Col. D. K. Allen, namely, the Albert Polhamus, Alcyon, Alfonso, Gold Crown, Golden Dream, Gold Hill, Golden Sunshine, Jita, Oriental, and Ponce de Leon. There are twenty-four mills in this county, besides several arrastres and Huntington mills. The Golden Cross Mining Company have 140 stamps in operation, 100 of which are 1000-pound stamps.

## SHASTA COUNTY.

Though a number of drift mines are in operation in this county, the principal mines are quartz. There is about the same number of stamp mills in Shasta county as there is in San Diego (24), the largest of which is the Uncle Sam mine of 35 stamps, with a capacity of 75 tons per 24 hours. Besides the stamp mill they have, however, 14 concentrators, some of the Frue type and others of the Triumph make. The Uncle Sam mine is located seven miles west of Kennett and comprises seven mining claims and sections of timber land. There are three main pay shoots, designated the East, Middle and West; present explorations indicate the probability of a fourth one. The cost of maintenance at this mine is extremely heavy, on account of the very precipitous and rugged nature of the country. Timber and wood have to be shot down to the required points. Eighty men are employed, and it is the intention of the owners, the Sierra Buttes Mining Company, to increase the force of workmen very soon.

The Harrison Gulch mines are also very important. This group is situated in the southwest portion of Shasta county, near the Trinity and Tehama county line, 55 miles due west from Cottonwood, and consists of the following mines: Bee Gum, Black Bear, Eagle Bird, Gold Hill, Gold Hunter, Gray Eagle, Gray Fox, Grover Cleveland, Knob Hill, Lost Mine, Lucky Baldwin, Newtown, Northwest Extension of Bee Gum, Northwest Extension of Gold Hill, Northwest Extension of Lucky Baldwin, Red Fox, Southeast Extension of Lucky Baldwin, and Wilbur. The quartz in the Bee Gum carries ochery matter with but few sulphurets near the surface, and yields well in free gold, in the arrastras. The veins are from two to three feet in width, and have been traced from Harrison Gulch, a feeder of the Middle Fork of Cottonwood creek, across the dividing ridge into Trinity county.

The small smelting plant at the old Afterthought mill near Furnaceville on Cow creek, F. R. Enright manager, will shortly resume operations after an idleness of about a year. During the long period of idleness at the smelter, work was continued somewhat irregularly at the mine. The supply of roasted ore on hand exceeds 900 tons.

A new strike is reported from the Whisky-town district, near the Iron Mountain road, about five miles north of Shasta. Robert Small is the locator. The ledge shows a width of six to seven feet near the surface and carries free gold.

## SIERRA COUNTY.

The fame of Sierra county has been spread to such an extent that it is not necessary to make any further remarks upon it. The

mines are principally quartz, though there are a number of drift placers and hydraulic mines. Some of the most noted mines are hydraulic. Among these can be mentioned the Eureka Mining Company's mines, situated eight miles north of Downieville, and comprising 20 acres of an ancient channel. The bank is 60 feet to 90 feet high, 30 feet of which is a pipe clay capping and about 200 feet across. Two miles below the dump is a restraining dam of cribbed logs, 25 feet high and about 200 feet long. An area of 200 feet by 150 feet has been worked during the 3½ to 4 months water season. Two giants are at present in operation. There are 16 stamp mills in this county, two of which are 40-stamp mills. Water power is most economical and is used principally for running the mills.

The Young America mine has one of the two 40-stamp mills. The tailings from the mill of this property were saved and are said to aggregate 150,000 tons. They and the mines were sold some time ago and a cyanide plant of 100 tons daily capacity erected, which commenced operations in September, 1896. L. M. Gree of Milwaukee, Wis., is the owner. Oscar Cecil of Sierra City is the superintendent.

The California Gold Production Syndicate's (Limited) St. Charles Hill mine is a drift and quartz mine. It is in township 20 north, range 9 east, between Goodyear's bar on the east and Fiddle creek on the west. There is 1,120 feet of development work on the property. A 30 horse-power engine runs the hoist and pump. The latter has a 9-inch discharge pipe.

## SISKIYOU COUNTY.

This county embraces nearly every character of mining known, and follow in their respective position as follows: Hydraulic mining is the most important; next to hydraulic comes drift mining, after which comes quartz, placer and river mining. It is difficult to tell which is the most important hydraulic mine in the county, as there are so many large mines in operation.

The Auberry mine has a No. 2 giant working. This mine lies on the Klamath river, a mile below Cottage Grove. The bank is 40 feet high, with 15 feet of gravel.

The Ahlgren mine is situated on Salmon river, five miles below Sawyer's bar. The bank is 80 feet high, with 20 feet of gravel near the soft decomposing syenite bedrock. The sluices are 20x24 and 1500 feet long. Water is taken from Little North Fork through four miles of ditch and flume. There are 800 feet of 12-inch and 8-inch pipe and a No. 1 giant working under 150 feet pressure. A sawmill with 56-inch saw belongs to the mine.

The Commodore quartz mine is at the head of Barkhouse creek, 13 miles northeast of Scott bar. The vein is two feet wide, lies between porphyry walls and carries about 4 per cent sulphurets. Two tunnels each 60 feet long have been driven on the vein. The double arrastra used to crush ore from this mine is a fine piece of work. (See sketch.) It reduces five tons of ore per 24 hours, and cost complete and ready to run about \$700. It requires two men, one on each shift, and is driven on a wooden hurdy-wheel so that its shaft *L* transmits the power by pin-wheels (at right angles to each other) to the arrastra shafts *H H*. The horizontal pin-wheels *I I* have 51 perpendicular hardwood pins 2 inches in diameter, 4 inches in length and set 4 inches apart from center to center. The pin-wheels *K K* are 3 feet in diameter and are built on

the 2-foot wheel-shaft. Each has 13 hard wood pins 2 inches in diameter, 4 inches in length, driven in horizontally 4 inches apart from center to center. Both wheels are made of sections of 2-inch plank nailed together and bound with two bands of wagon tire. The ends of each shaft terminate in 3-inch iron spindles. Each pit is built as follows: Heart-wood center post *A*, 8 feet long and 10 inches in diameter, is set 4½ feet in the ground; around this a double floor, *B*, 16 feet square and made of 2 inch plank, is laid as a foundation. Next, the circular rim, *C*, 12 feet in diameter, is built of 2-inch plank with broken joints until the top is 38 inches above the floor. In the pit thus formed moist clay, *D*, is rammed, a thin layer at a time, until it is 10 inches thick. Next, a bed of dry clean sand for the pavement is placed upon the clay. The pavement is made of hard fine-grained rocks (trap) having at least one nearly flat surface, which are placed as close together as possible and the interstices filled with spawls tightly wedged. The annular pavement *E* should be as smooth as possible and with a depression 4 inches deep. The drags or mullers *F F* are made of the same rock as the pavement and weigh from 800 to 1000 pounds each. By means of eyebolts let into the rock they are hung to the drag-arms *G G* by chains. The forward edge of the drag is raised about an inch to allow it to pass over the material, and the eyebolts are so placed that one corner of the drag is somewhat in advance. As it flows through the pulp a portion is pushed to one side, directly in the path of the next following drag. The relative position and size of the drags must be such that every part of the pavement is passed over in each revolution. The proper speed is 12 revolutions per minute.

The modus operandi is as follows: Each charge consisting of 1¼ tons of ore broken to the size of a walnut, is gradually shoveled into the pit, water enough being added to make a rather thick pulp when the quartz is pulverized. After eight hours grinding (more or less according to the hardness of the ore), 2 ounces of quicksilver for every \$20 gold in the ore is added gradually. After two hours more the speed is reduced to 4 revolutions per minute, to allow the amalgam to settle, water being added to thin the pulp. After another two hours, or when a pan scraped along the bottom does not show any amalgam or quicksilver, the pulp is allowed to pass off slowly into the sluices. The outlet for this purpose is made as follows: A slot 16 inches high and 6 inches wide is cut through the rim, extending from a point four inches below the top of the rim of the pavement. This opening is closed by pieces of boards 2 inches high and sliding in guides. By removing these pieces one by one, 2 inches in depth of pulp can be run off each time. The sluices into which the pulp flows are from 12 feet to 24 feet long, and the bottom covered with amalgamated plates, rifle and burlap. When the arrastra is emptied to within three or four inches of the bottom the outlet is closed, the speed increased and a new charge of ore put in. About once a month the paving is taken up and the amalgam collected from the sand below cleaned and retorted.

There are about 40 stamp mills in this county, the most of which, however, are small mills. Besides these mills there are 13 or 14 arrastras and two Huntington mills in operation.

Space will not allow us to complete the list of counties in this issue, but at some future date we will endeavor to finish the resume started last issue.



## GEORGIA.

Judge Pardee has ordered that the property of the Augusta Mining and Milling Co. be sold to the highest bidder without regard to price, and sets January 11th next as the date of the sale. The property of this company was recently estimated to be worth \$51,404, but no one would bid that amount when it was put up at public sale.

Yorkville gold mine, in Paulding county, which was promoted by J. L. Hudson, of Detroit, Mich., is to be sold. The receivers, Mr. Alex P. Hull and George H. Opdyke, who were appointed last July, are now ordered by the court to act as commissioners to conduct the sale of the mining property. The date fixed for the sale is December 7th, and the minimum bid, as fixed by the court, is \$20,000 or over.

It is reported that E. B. Hornaday has discovered kaolin deposits on his farm near Americus, in Sumter county.

## IDAHO.

At the annual stockholders' meeting of the Golden Bar Mining Company held Nov. 8th, the following directors were chosen for the ensuing year: J. N. Stacy, J. Q. Moxley, L. B. Howard, A. R. Trimble and M. Donzac of Lewiston, Idaho, and Thomas Crowley, Dexter Rouch and Jacob Gisel of Pierce City, Idaho. The work on the mine up to the present time consists of new quarters, shops and outbuildings complete; three shafts on the ledge, No. 1 being down 70 feet and showing a 28-inch pay streak of free milling ore assaying on an average \$112.18 per ton.

Near Murray: Matt Feeney, Charles Harbor and Frank Kane secured the contract from the lessees of the Mother Lode to extend the Slab Tunnel 50 feet and then make an upraise of 50 feet in an endeavor to find the former rich vein behind the big ledge which cut the flat vein.

The mill at Standrod is nearing completion and will soon be in running order. They are working the old Frank Gwin mine and have lately struck a large body of very fine ore. They estimate that they now have \$30,000 worth of ore on the dump ready for the mill. This property furnishes employment for ten men and they will soon put on a larger force.

## MICHIGAN.

In Calumet & Hecla the old shaft house at Nos. 9 and 10 shafts of South Hecla caught fire on the morning of Nov. 14th and burned to the ground. The fire did not spread to the shaft. It will take some time to replace the loss.

The new coal trestle in the Centennial is finished. The management states that the stamp mill will start as soon as a trestle between it and No. 1 shaft is completed. A new compound condensing Prescott pump, with a maximum capacity of 2,000,000 gals. per day, will supply water for the mill. Underground developments started by Captain Chynoweth are stated to be all that could be desired. Masses of copper, varying from 100 to 500 lbs, are being hoisted and dumped on the huge stockpile in readiness to be treated soon as the mill goes into commission.

The Central mine is reported as looking better than for several years, and but for the recent fire would have made a good showing this month. About 100 men are employed.

## MISSOURI.

The Locust Mining Company, on the Gramby land, in Leadville Hollow, opened up two drifts having a 30-foot face of zinc ore that is very rich. They started up their steam concentrating plant last week, and are producing large quantities of high grade ore.

Thos. Connor land is situated three miles west of Joplin and north of Central City, and contains 5½ acres, and has been lately opened up. Eight shafts are going down, in three of which there is pay dirt with only enough water to clean the ore. Watkins & Company are down 60 ft. in open ground, and are getting fine pebble jack. Rose & Halenback are down 70 ft., having gone through 12 feet of lead and zinc ore dirt.

The Katy Mining and Smelting Company has secured a lease of 10 acres from Cross, Martindale & Cross, of St. Louis, who have the first lease on the Cooley land at Carl Junction. T. N. Sedgwick is president, and W. M. Abernathy superintendent. They have put down five drill holes and found zinc ore in each from 106 to 111 feet, and went through rich dirt for over 25 feet with a 30-foot cap rock of limestone. This week they will start to sink a pump shaft and have put up a belt hoister and put in a Myrcle pump.

## MONTANA.

Incidentally we learn that good ore has been encountered in the High Ore mine, near Basin.

The Sand Coulee Company is employing 600 men in the mine and all are at work full time. The pay roll is consequently very large.

Work at the Boston and Montana smelters continues good, and it is expected that there will shortly be an increase in the force.

Matt Alderson has leased the old Clark & Upson mill at Sterling, and is putting in a cyanide plant to work the ores in that vicinity.

B. E. Vinson, who has charge of the work now being done on the New York, in Fergus county, states that this property is looking fine, and that some excellent ore bodies are being uncovered.

The Twin Bridges smelter is said to be running right along with good results. One carload of bullion was shipped to Omaha last week, and another is about ready to go forward.

The Basin and Bay State Mining Company now has sixty men employed in the construction work of the new Katie plant. A large force of masons were put to work laying the foundation for the smelter, and the work is going ahead with a rush.

The Copper Queen mining property at Mineral Hill, upper Bitter Root, has been bonded by W. M. Bickford to eastern parties for \$150,000; also the Ravalli, Limekiln Club and the Florence End lodes to the same parties for \$50,000. These properties are known to be in a rich mining belt, the formation being similar to the Overwich. Arrangements have been perfected to have work begin at once.

## NEVADA.

The concentrator of the Adelaide Copper Company at Golconda, Nevada, will be completed Dec. 1st. There are now about thirty new employes on the mill work. The great drawback in completing the work has been the slowness in transporting the requisite material to the ground. The contract which was let some time ago to sink a 300-foot shaft and a certain number of drifts and crosscuts has been annulled by mutual consent. The working force at the mine has been increased to forty-five men. There are at present about forty draught animals used in hauling the ore from the mine and repairing the mill. Only from 25 to 30 tons of ore arrive daily at the dumps of the concentrator. There are in the neighborhood of 300 tons on hand.

H. Hennessey has commenced his assessment work on his claims in the Gold Run Mining district in Humboldt county, Nevada. He is more than ever convinced that his section has a bright future.

The Gold Creek Mining Company in a recent placer workings at Gold Creek uncovered a vein the assay of which shows \$933 in gold and 163 ounces in silver. This is one of the greatest discoveries ever made in that section of Nevada.

## NEW MEXICO.

It is learned that the Albemarle and Lone Star mines in the Cochiti mining district have been sold to eastern capitalists for \$240,000. Captain Posey of the Tom Bay mines, Telluride, Colo., conducted the negotiations. It is believed that this deal will give a wonderful impetus to the mining industry in Cochiti district.

John W. Schofield, receiver of the Union National Bank, Denver, the other day bought at public sale the Iron King mine, together with the mill of the Cochiti Mining and Milling Company for \$10,000.

The Confidence mine at Mogollon has its regular force of 70 men at work upon the mine, and a large amount of development work is being done in addition to extracting about 60 tons of ore per day which is reduced at the company's mill at Whitewater. About fifty men are employed on the water power pipe line, building trestle, riveting pipe and other work necessary to the utilization of the great waterpower of Whitewater creek.

The Maud S. mine and mill are at a standstill, the mine is kept clear of water and everything in readiness to resume operations at a moment's notice.

Output of Hillsboro gold mines for the week ending Thursday, Nov. 25th, 1897, as reported for *The Advocate*:

	Tons
Wicks.....	35
Butler.....	5
Richmond.....	5
Happy Jack.....	5
Snake Group.....	60
Opportunity.....	20
Sherman.....	5
Prosper.....	5
Eighty five.....	5
Rex (silver-lead).....	5

Total ..... 150

Total output since Jan. 1, 1897,—8,494.



## OREGON.

The 5-stamp mill at the Jewett mine, near Grant's Pass, which has been closed down for some months for lack of water, this week began operations. There are some 300 tons of high-grade ore now at the mill, about 50 tons on the dump and lots of ore in sight.

Henry Clay Perkins has made a discovery of copper at the head of Galice creek, Josephine county. Specimens of gossan cap shown indicate large bodies of ore lying below. He says the whole surface of the ground is covered with float.

Cameron & Pervin, on Greens creek, are doing some substantial development work on their quartz mine and have a good showing. A drift has been run out on the vein and a winze sunk 40 feet, all on good ore. The vein is 18 inches wide and the rock worth \$40.

Corbus and J. W. Hawley, a banker of Monmouth, Polk county, Oregon, spent seven days at the Powells creek placer prospecting the gravel. Out of 16 cubic feet of dirt they got \$65 in gold. Four dollars per square yard is very good ground, and a sale of the property will probably be made within thirty days.

D. F. Strobeck has bonded several quartz claims on Board Shanty creek and will develop them extensively. He is erecting buildings at present, and when completed mining will commence in earnest.

The Mead quartz mine on Jones creek, four miles east of Grants Pass, has been bonded to local parties. This property has a good showing and no doubt will prove to be a bonanza. The price, we learn, is \$6,000.

## SOUTH DAKOTA.

The Pelatan-Clerici electro-cyanide plant, recently installed in the Poorman mill, by the South Central and Christiania Syndicate, Limited, is now in operation on South Central ore. The manager, Mr. Gardanier, is proceeding very cautiously with his experiments, and thus far only one vat has been operated and that only in the day time. About 60 tons of South Central ore will be treated at this time, to be followed by about 60 tons of Morning Star ore.

Plans are being drawn for a new shaft-house and figures made for a deep shaft on the Jennie Jewett claim, owned by the Hawkeye Company. It will require deep mining on this property to reach paying ore. The mines have been prospected for a number of years, but there has been a lack of capital to put the shafts down. A number of strikes have been made, but thus far they have pinched out. The new shaft will be sunk to a depth of 500 feet. This company is backed by parties in Nebraska principally.

There is a force of 60 men at work in the five mines in the Portland. There are numerous improvements in operation on the several claims. The principal mines are the Mark Twain, Golden Sands, Clinton, Dividend and the Watson & Greenough.

## UTAH

## Bingham Notes.

Some of the mines, notably the Zelnora, are in tribulation owing to difficulty in getting transportation to the depot. Standish & Jimpson, Tom Mayne and others are working their outfits to their full capacity.

There is some prospect of a renewal of the project to tap the veins of Markham hill with a deep tunnel. Several prominent mining men interested are enthusiastically in favor of operations beginning as soon as arrangements can be made.

The Last Chance mill building has been completed and is running along nicely.

The Old Spanish was among shippers last week, having sent out two carloads that assayed about 40 per cent lead.

The St. Joe Mining Company, recently organized, is planning to actively operate its Bingham property.

## Mercur Notes.

A. Murphy has purchased a two-thirds interest in the Hornet group from Charlie Hales and A. F. Fox for a substantial consideration. The group comprises three claims and covers the extension of the Seal vein on the north and east.

R. A. Woods has again put a force of men at work on the Independence group, north of Ophir canon. A whim has been put in place, and sinking will be continued from the bottom of the incline, which is now down 170 feet. "Northeast fractures," regarded as excellent indications by mining men in this camp are being encountered in the Seal, and values of \$2.10 have been had. Manager Murphy is feeling much encouraged.

## Tintic Items.

Peyton and Snyder have purchased 5,000 tons of low-grade ore of the Mammoth Mining Company. A custom mill fills a long-felt want in the district, and should be patronized liberally.

On account of the accident at the Eureka Hill mill, the mine was shut down last week, the bins being full. Work was resumed at the mill the other day, and the mine opened up as usual the same night.

A large body of gold ore was struck in the shaft of the Lower Mammoth the first of the week. It is said to be the largest strike yet made in that property, and insures a revenue to the owners for a long time to come.

Ore and bullion receipts for one day at Salt Lake City, Utah, amount to \$12,000 in bullion, and ore receipts are about \$19,500.

A carload of ore, running as high as 198 ounces silver per ton, was shipped from the Chloride Point last week. Since Oct. 1st the company has shipped over \$20,000 worth of ore, enough to pay all running expenses and build a mill, and all of the ore has been taken out by 13 men. The work on the mill is progressing as rapidly as possible, and the machinery will soon begin to arrive. The intention of the company is to have everything in readiness for business by Jan. 1.

## WASHINGTON.

[Extracts from the Northwest Mining Mirror.]

Prospectors from the new gold fields in Whatcom county continue to bring encouraging reports of the richness and expanse of the new district. It is the general opinion that it will take at least five years to fairly prospect the great region.

Dr. Wilbur, H. A. Judson, H. S. and Henry Slade of Lynden, claim to have located a big ledge of rich quartz in the neighborhood of Swamp creek, and some of the samples of ore brought in by them assay \$492 to the ton.

Deputy U. S. Marshal McGinnis, L. D. Ryans and George W. Felker have returned from a prospecting tour along the headwaters of the Noosack. They claim to have discovered paying placer grounds, and staked out 260 acres of the river bottom.

The Ford Mining Company has been incorporated at Tacoma with a capital stock of \$100,000 by T. J. Anders of Olympia; M. J. Gordon, O. W. Barlow, W. H. Polhamus and N. B. Hutchinson of Tacoma.

Late word from the Ida Martin mine indicates that there is much activity in Skamania county. A. Stephenson of Tacoma, who has recently purchased a third interest in the Ida Martin, states that the tunnel lately begun on the vein is well under way and will be continued to a depth of 80 or 100 feet, after which they will commence cross cutting the ledge, which is 172 feet between the walls. If the results, when the tunnel is completed, are satisfactory, as at present, the owners intend to operate a smelter. Tests of the ore are being made from time to time, the most recent assays showing from \$42 to \$64 in copper and gold from a depth of 10 to 15 feet. Besides the force engaged on the tunnel a number of men are opening a new trail.

## FOREIGN MINING NEWS

## ALASKA.

## YUKON DISTRICT.

According to Seattle papers, R. V. Schmidt, a miner who recently arrived from Juneau, says that Stewart River will prove no less rich in gold than the Klondyke before next season passes. This summer he says he and three partners took out \$9,000 in gold, in five days, from a tributary flowing into Stewart River, 200 miles above its mouth.

Chris Hanson had arrived from the head waters of Pelly River, coming out by the Stickeen River. He and his partner opened claims on a tributary that paid them \$11 per day each. They came out for the winter before black rock was reached. Eleven New York men, headed by Hen. Frischbar started in September to reach the headwaters of Copper River, and go thence overland to Yukon. Fall storms caught them crossing a big and dangerous glacier, and they turned back. In February they will start again over Chilkoot Pass.

The Victoria Metallurgical works are in possession of a very remarkable specimen of native copper ore brought down recently from Alaska. Very large deposits of this ore are said to exist in the district tributary to the Copper River, near Mount St. Elias. The



ore is so malleable and pure that the Alaskan Indians use it in its native form as bullets for their rifles.

The Washington and Alaska Company has begun the construction of a wharf from the mainland to deep water at Dyce. Two or more wharves from the Skagway to deep water are under construction, but this is the first wharf to be constructed at Dyce.

It is conservatively estimated that \$8,500,000 in gold has been washed out and picked up since the fever broke out, but a little less than half of that amount has been brought down. It must be remembered that dust and nuggets are the circulating medium of the new gold district.

Columbia Iron Colt, Alberta, Commander, Crown Point, Palo Alto, Robert T. Lee, Red Eagle, Nest Egg, Homestake, Deer Park, Silver Bell, City of Spokane, Monita, White Bear, St. Paul, Georgia, Morning Star, Great Western, Hattie, Sunset No. 2, Lily May, Gopher, Iron Horse, Colonna.

The Annie Laurie group of gold claims on Phillip's Arm has been sold by the owners, Mr. Wm. Harvey and others, to a syndicate, at the head of which is Mr. R. D. Fetherston, of Vancouver. The properties are very easily accessible for shipping, running from salt water up the mountain side and crossing Shialely Creek. The properties will at once be developed.

Messrs. Burns, Kilby and Stevenson are pushing along development work on their

The Kootenay Consolidated Company have struck the Big Boston lead at the 250 foot level, on the Bennison claim, by means of a tunnel which they have run over ninety feet. They will now cut across the lead. This enterprising company have, moreover, just let the biggest contract that has been let in East Kootenay, namely, for 500 feet of tunneling as a low level working tunnel at the Bennison and Boston claims.

Some excitement has been caused at Donald by the discovery of a ten foot lode of well-defined character on the divide between the Bluewater and Wit a bit Rivers. The assays obtained gave an average of twenty-six per cent of copper. Several claims have been located.—*B. C. Mining Record.*



GUANAJUATO, MEXICO

## BRITISH COLUMBIA.

### The Mining Plants of Rossland.

There are thirty-five mines in the immediate vicinity of Rossland which use steam plants that cost in the aggregate \$370,000. The Le Roi heads the list as far as size is concerned. Early in the present year it installed a 40 drill compressor, which was necessary in order to increase the output of the mine. The mine is equipped with a 200-horse power hoist, an electric light plant, tramway and large crusher and other machinery. This requires 500-horse power boilers. The plant cost \$150,000. The other mines using steam hoists and compressors are the War Eagle, O K., Centre Star, Josie, Red Mountain, Cliff, Monte Cristo, Kootenay &

claims north of the Thompson, a few miles from Lytton. These properties consist largely of copper, and run from \$35 to \$45 per ton.

The Lily May, of Rossland, is stated to have discovered a fine ore body, four feet through, and assaying \$30.20 to the ton.

Besides quartz mining, there are several placer claims being worked near Lytton. The Rosy Bell Company have enlarged their plant on the Fraser, opposite the town, and in another year will be able to carry on extensive operations. A Mr. Killam, of California, is putting in a hydraulic plant a few miles up the Thompson opposite the Lily May, where he claims to have struck a rich bar.

## MEXICO.

### GUANAJUATO, MEXICO.

Mexico has within its borders some mineral zones that have produced enough gold and silver to entitle them to be considered bonanza camps. Among the most important is Guanajuato, which in population ranks as the fifth in Mexico. It is one of the old cities of the republic, and is the shipping point for some of the best known and largest producing mines on the American continent. A great deal of ore is mined on the leasing principle. Many of the large dumps that have been considered valueless have under the system of allowing the Mexicans a royalty on what they sorted out become a source of revenue to a



large number of people. Most of the output of the mines around Guauajuato was formerly exported to the United States, but the smelters that were established in Mexico soon after the McKinley bill passed manage to make prices that keep the ore in the country. The city is built in a narrow canon, and during the rainy season the water is occasionally a foot deep in the principal streets. The houses are well built, and the city, which has a population of 75,000, presents a very cosmopolitan appearance to the stranger.

The Bonancita Gold Mining Company of Sonora, Mexico, is the title of a new company incorporated in Nogales under the laws of Arizona. The capital is \$1,000,000, and the object is the exploitation of mines in the Republic of Mexico.

The *Mexican Trader* gives the following trade statistics for the month of May of the present year as compared with that of the past year:

#### IMPORTS.

Caustic soda and potash to the value of \$19,099, against \$9,007, for the corresponding period of last year, as being an increase of \$10,002.

Iron and copper sulphates to the value of \$24,649 as against \$8,847, for the corresponding period of last year, being an increase of \$15,802.

Sheet zinc to the value of \$6,635, as against \$1,140, for the corresponding period of last year, an increase of \$5,495.

Pig iron to the value of \$464, as against \$9,198, for the corresponding period of last year, a decrease of \$8,734.

Steel rails and accessories to the value of \$52,592, as against \$101,461, for the corresponding period last year, a decrease of \$48,869.

Quicksilver to the value of \$24,857, as against \$85,126, for the corresponding period of last year, a decrease of \$60,269.

Coke to the value of \$60,943, as against \$35,942, for corresponding period of last year, being an increase of \$25,001.

High explosives to the value of \$24,874, as against \$57,175, being a decrease of \$32,301.

Mining fuse and caps to the value of \$27,904, as against \$7,455, being an increase of \$20,449.

Powder for mines to the value of \$1,524, as against \$5,566, being a decrease of \$4,042.

#### EXPORTS.

Gold in various forms, except coin, to the value of \$439,170, as against \$566,242, being a decrease of \$127,072.

Quicksilver to the value of \$271, as against \$26,310, being a decrease of \$26,039.

Silver in various forms, except coin, to the value of \$4,146,873, as against \$3,658,355, being an increase of \$488,518.

Foreign gold coin to the value of \$9,913, as against \$9,740, being an increase of \$173.

Mexican gold coin to the value of \$7,947, as against \$10,167, being a decrease of \$2,220.

Foreign silver coin to the value of \$21,120, as against \$28,800, being a decrease of \$7,680.

Mexican silver coin to the value of \$254,754, as against \$464,622, being a decrease of \$209,868.

Copper to the value of \$517,167, as against \$595,820, being a decrease of \$21,347.

Lead to the value of \$339,498, as against \$228,056, being an increase of \$111,442.

## GENERAL NEWS

The Sunrise Mining Syndicate of London, England, which is capitalized for \$150,000, and which proposes to carry on mining in Montana, has filed articles of incorporation.

### Mineral Exhibit Building.

The Seattle and International Railway has erected in Seattle a building to be devoted to exhibiting the mineral resources of Washington. They now have men in the field collecting minerals and data for the exhibit. The great interest that is being taken on account of the recent rich discoveries in the Mount Baker mining district, 130 miles northeast from Seattle and reached from Deming, a station on the Seattle and International Railway by a good road and trail, has induced them to make this move. The centre of the discoveries is thirty miles northeast of Deming. The



MINERAL EXHIBIT BUILDING LOCATED AT SEATTLE, WASH.

distance from Seattle to the international boundary is 125 miles, with one train daily each way by way of Hartford Junction. The Silverton and Monte Cristo mining districts are also reached by the Seattle and International. The Hamilton district on the Skagit river is reached on this line by way of Woolley. The Snoqualmie district is reached by way of North Bend.

Mining in Washington is in a more prosperous condition now than ever before, and the class of people who are seeking investments in the mines guarantee the successful operation of every mine that can by skill and unlimited capital be made to pay a dividend.

## PERSONAL NEWS ITEMS

Mr. DE PUKTON GLIDDEN, who has been in Montana for some time past, has arrived in Salt Lake City.

W. H. REMINGTON has returned to Salt Lake City from Butte Montana, where he has been in mining business.

P. T. FARNSWORTH, the Salt Lake mining man, has been at work in Austin, Nevada, for some time past.

HENRY B. ADRIE, superintendent of the Tom Hoy Gold Mining Company, Cal., has resigned his position. Mr. Adrie was a former superintendent of the Desert Queen mine, north of Indio, Riverside Co., Calif.

C. S. CHAPMAN has been visiting Grant's Pass, Ore., from San Francisco.

W. A. KELLEY, the Montana mining man, is in Los Angeles. He reports great activity in mining through the parts of Nevada and Montana he has visited.

The chief assayer of the Consolidated Kansas City Smelting and Refining Company, at Argentine, Kansas, Mr. CURTIS ALEXANDER, who has been visiting Montana, is now reported to be in Salt Lake City Utah.

WM. IRELAN, jr., of San Francisco, is still in Nevada, examining mining properties.

J. H. PRILHAM has returned to the City of Mexico from a prospecting trip to Guerrero, Mexico.

PROF. OGDEN, of San Francisco, Cal., is examining the Brunswick lode in Nevada.

MR. RIVERS, the superintendent of the Golden Cache mine, of Lilloet, B. C., has returned to British Columbia, from San Francisco, Cal., where he has been buying mining machinery.

EDWARD N. LINDSEY, who went to Alaska some time ago to investigate the mines of that country, has returned to San Francisco.

We understand that W. B. DEVEREAUX, who was examining some California mines, has returned to Colorado.

JESSIE PRATT, who is interested in some gold properties in the desert in Southern California, has returned to Los Angeles.

Word comes from Red River City, N. M., that K. H. SIEBEL, of Iowa, has been examining some properties at that place.

A. MIDDLEBROOK has been appointed manager for Denver, Col., of the Jeanesville Ironworks Company's branch office.

Louis Ruhl, of the Roessler & Hasslacher Chemical Company, called at the JOURNAL office, last week.

S. MILLS and E. D. CARTER, of Idaho and Montana, have been visiting Grant's Pass, Oregon, lately.

P. W. McGRATH, who is one of the owners of some valuable property in the Salton country, Cal., was in Los Angeles last week.

T. R. JONES, a Salt Lake smelter man, has recently examined some eastern smelters and their workings. Mr. Jones is a progressive business man, and intends placing new and modern machinery in his smelting works—The Germania.

J. R. McDONALD, of Milwaukee, Wis., was recently appointed manager of the properties of the Golden Scepter Mining Co., at Quigley, Montana.

J. B. HAGGIN recently inspected the works of the Anaconda Copper mines at Butte, Montana, in which he is largely interested.

F. M. FRANK, a former Utah mining man, was in Los Angeles recently.

A representative of the Illinois Steel Company, CHAS. G. W. COOK, is examining mining property in Boies, Iowa.

F. H. JOHNSON, representing Chas. B. Boothe & Co., of Los Angeles, Cal., is in Arizona on a business trip, looking up orders for mining machinery, which his firm have special facilities for filling.

CHAS. A. MARTINE, of Georgetown, Colo., is still examining mining properties in Guerrero, Mexico, where he went some time ago.

OTTO STALLMAN and JOE FERRON, who have been in Nevada for some time past, have returned to Salt Lake City.

GEO. E. CROOKS, representing John Taylor & Co., assayers' supplies, San Francisco, Calif., is a visitor in Los Angeles.

J. B. HARDEN has been examining the mines of Mercur, Utah. Mr. Harden is a Boston mining man.

H. B. BOTSFORD, of the Brooklyn mine, at Virginia Dale, Cal., was a caller at the JOURNAL office recently.

ALEX. BURRELL, manager of the Drumlammon Mining Company, who was in Salt Lake City, Nov. 22nd, said that the cyanide plant had proved entirely satisfactory. It has been in operation continuously since 1st July last, and has treated about 12,000 tons of tailings each month.

### OBITUARY.

A. L. McLAIN, secretary and treasurer of the Rambler-Cariboo Mining Co., died in Spokane, Wash. the early part of November.



## THE MARKETS.

NEW YORK, Nov. 27th, 1897

The following are the Silver, Copper and Lead quotations for the last two weeks:

	Nov. 27	Nov. 20
Silver	57 1/2	57 1/2
Copper	18 1/2	18 1/2
Lead	10 1/2	10 1/2

The market for silver is rather hotful. Prices remain between 57 and 58 but goes from one extreme to the other in one day and comes back the next. The market was rather strong at the close of the week and prospects for the future is a little encouraging. The United States Assay Office reports the total receipts of silver at 234,000 ozs. for the last two weeks.

## COPPER

Quotations are firmer from abroad and prices locally have stiffened a little. Lake copper is quoted in New York at 10 1/2c; electrolytic copper in cakes, bars or ingots at 10 1/2c; cathodes at 10 1/2c; and casting copper at 10 1/2c.

## LEAD

The heavy decline has come to a stop mainly because, hardly any lead was pressed for sale.

The quotations were \$1.50

## SPELTER

Spelter continues flat and with a fair demand from consumers, and a desire of the sellers to unload on the market.

The St. Louis market is quoted at \$3.80 and the New York market at \$4.95.

## ANTIMONY

The quotations are 7 1/2c for Cookson's; 7 1/2c for Hallett's; 7 1/2c for Japanese and 7 1/2c for U. S. Star.

## NICKEL

Business continues moderate and no change in prices can be reported.

New York quotations for ton lots are 33 1/2c and 36c per pound and for smaller orders 35 1/2c and 38c.

## ZINC

While the tendency of the metal remains firm throughout, business has not been large. Prices remain dull at \$13.75 and \$13.80 per spot.

## PLATINUM.

Prices are firm at \$14 and \$15 per oz., New York. For chemical ware, heat hammered metal, Messrs Bimer & Amend of New York furnish the following quotations, the prices given below being respectively for orders of over 250 grams, for orders of over 100 and less than 250 grams and for orders of less than 100 grams. Crucibles and dishes, 58c, and 50c per gram. Wire and rods, 58c and 50c per gram.

## QUICKSILVER

New York prices of Quicksilver remains unchanged at \$38.50 per flask. San Francisco quotations are \$30 for domestic consumption.

## COKE

The market is steady at San Francisco with no change in quotations. For Hercules No. 1, from 11 1/2c to 17 1/2c, according to strength and quantity. No. 2, from 9c to 11c, according to strength and quantity.

## COKE

The Coke market is steady with a fair demand reported.

The market is quoted as follows at San Francisco.

English, to land.....	— 00 —
" spot in bulk.....	11 00 00
" in sacks.....	12 00 00
Cumberland.....	10 00 00

## BORAX

The San Francisco market in Borax is fairly firm.

Refined, in carload lots, in barrels

Refined, in carload lots in sacks

Powdered, in car lots

Concentrated, in car lots

## THE MINOR METALS.

Quotations are given below for New York delivery:

Aluminum, No. 1, 98 per cent, ingots, per lb	48 1/2c
No. 2, 94 " "	47 1/2c
Rolls sheets, " "	47 1/2c
Alum.—Nickel, " "	47 1/2c
Bismuth, per lb	47 1/2c
Phosphorus, per lb	47 1/2c
Tungsten, per lb	47 1/2c
Tungstic acid, " "	47 1/2c
Ferro-tungsten, 60 per cent	47 1/2c

## CHEMICALS

Business has been quite outside of contracts which are being taken for caustic soda.

Quotations, generally, are as follows:

## CAUSTIC SODA

Quotations for caustic soda are \$2.10 to \$2.20 per 100 pounds.

## ALKALI

Domestic, 54 per cent., 65c. for 50 ton lots and over and 70c. and 80c. for smaller quantities. 44 per cent., \$1.00 and \$1.20 for jobbing lots.

## CARBONATED SODA ASH

48 per cent., 90c and 95c. per 100 lbs 58 per cent.

## DI CARBONATE OF SODA.

English, \$2.00 and \$2.25 per lb. American, bulk \$2.00 and \$2.25 per 100 lbs., according to brand.

## SAL SODA

English, 67 1/2c and 75c. per 100 lbs American, 62 1/2c and 65c. per 100 lbs

## CHLORATE

\$9.50 and \$9.75 per 100 lbs

## Acids.

The trade is fairly active just now and prices generally pretty well maintained.

Prices are per 100 lbs. in New York and vicinity in lots of 50 carboys or over. Quotations are as follows: Acetic acid, commercial No. 8 (in barrels), \$1.40 @ \$1.50; in carboys, \$1.50 @ \$1.65; redistilled, 28 per cent., in hble \$1.70 @ \$1.80; in carboys, \$1.90 @ \$2.05. Muriatic acid, 18 1/2, 75 1/2c, 85 1/2c, 95c; 22 1/2, \$1.15 @ \$1.25, according to make and quantity. Nitric acid, 36 1/2, \$3.50 @ \$4.00; 40 1/2, \$4.00 @ \$4.50; 42 1/2, \$4.50 @ \$5.50. Oxalic acid, \$7.25 ex-dock and \$7.50 ex-store. Mixed acids, according to mixture. Sulphuric acid, 1 1/2 per cent., 70c @ 85c in carload lots, 10c @ 15c higher for small quantities. Chamber acid, \$6.00 @ \$6.50 per ton at factory. Blue Vitriol, \$3.62 @ \$3.75 according to grade and order.

## BRIMSTONE.

This is easier and quotations are for best unmixed seconds \$19.75 @ \$20.50 according to position. Thirde are about \$1 less.

## MURIATE OF POTASH.

We quote New York and Boston, 1 1/2 @ \$1.78c. Philadelphia and Norfolk, 1 1/2 @ \$1.70c; Charleston, Savannah, Wilmington and New Orleans, for 80 1/2, 85 per cent. basis of 80 per cent., 1.78 1/2 @ \$1.81c in lots of 50 tons and upward.

## KALIN.

Invoice weights as taken at port of shipment per ton of 2,240 lbs. testing 12 1/2 per cent. actual potash, equivalent to 23 per cent. sulphate of potash, \$8.80 @ \$8.90.

## NITRATE OF SODA.

The Market continues heavy and prices unchanged at \$1.50 per 100 pounds for future delivery and 157 1/2 for spot.

## FINANCIAL NOTES

The statement of the United States Treasury, on Thursday, November 19th, shows balances in excess of outstanding obligations of \$19,055,128, a decrease of \$2 during the week.

Gold	\$1,000,000,000
Silver	\$1,000,000,000
Legal Tender	\$1,000,000,000

amounted to \$19,055,128, a decrease of \$2 during the week.

Exports of specie from San Francisco in October were \$6,999,181. The amounts and descriptions of specie shipped in the first 10 months of the year compare as follows:

Silver bars	\$21,900,000
Mexican dollars	\$1,000,000
Coins	\$1,000,000
Gold bars	\$1,000,000
Gold coins	\$1,000,000
Gold dust	\$1,000,000
Total	\$21,900,000

The destinations of above shipments were as follows this year: Hong Kong \$7,169,389; Shanghai, \$2,263,030; an, \$1,712,270; India, \$1,148,141; \$22, Tabiti, \$1,000; Central America \$21,200, Mexico, \$750; New York, \$23,251,927. A large part of the increase this year was in coin shipped to New York.

## Gold and Silver Exports and Imports

At all United States ports, October, 1897, and years from January 1st, 1897 and 1896:

	Exports	Imports	Exports	Imports
Gold—				
Oct.	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000
1897	\$2,000,000	\$2,000,000	\$2,000,000	\$2,000,000
1896	\$2,000,000	\$2,000,000	\$2,000,000	\$2,000,000
Silver				
Oct.	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000
1897	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000
1896	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000

This statement includes the exports and imports at all United States ports, the figures being furnished by the Bureau of Statistics of the Treasury Department.

## Gold and Silver Exports and Imports, New York.

For the week ending November 19th, 1897, and for years from January 1st, 1897, 1896, 1895, 1894:

Period	Gold Exports	Gold Imports	Silver Exports	Silver Imports
1897	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000
1896	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000
1895	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000
1894	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000



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The gold exported for the week went to London and the West Indies; the silver went chiefly to London. The gold and silver imported came from Central and South America and the West Indies.

Gold imports are still delayed in spite of the heavy balance in our favor shown by the Treasury returns. The conditions remain unchanged, and there will be no imports until the money markets on the other side are easier.

#### MINING STOCK MARKETS.

LOS ANGELES, CAL., Nov. 30, '97.

Market dull and featureless, prices almost the same, but the bulk of trading has been in the cheaper ores. Among the unlisted, the stock of the Mining, Milling and Water Supply Company has been quite a trader, but has gone to the gift price basis; selling seems to be from insiders, and the stock at the close went begging. This is a good property by all respects, but is poorly managed.

At the close, this is certainly a buyers' market, but there are few orders. At the closing, Wedge is still a guess, and the brokers are all at sea after the last drop.

Reports from the Wedge property continue to be very encouraging, and a new gasoline hoist and engine have been erected during the past week. Insiders are predicting that this stock will pay a dividend early in January, if not late in December; in fact, some are predicting a dividend as a Christmas present to the stockholders of this company. Still, with all these favorable indications, the stock refuses to move upward, and is selling lower today than it has for three weeks. The reason for this is hard to decipher.

SAN FRANCISCO, NOV. 29, '97.

A continuance of the strong depression which has characterized the market for some time past is apparent on every side. A suspicion that good ore bodies have been encountered in the Comstock is affoot.

They are still pushing the north lateral drift ahead from the 900-foot Union shaft level. In Union the work is confined to the 900-foot level, while in Mexican it is the 1000-foot level that receives attention. There is nothing new reported from either mine. In Ophir they are still crossdrifting west on the 1000 foot level and also central tunnel

levels. The showing in the former shows an improvement, and therefore it is expected that it will be stoped soon. In Occidental, they are still pegging away on the 560-foot, 650-foot and the 750-foot levels. It will take well towards the close of December before they expect to reach the ore on the 750-foot level found above. In Chollar and Potosi the work reported last week is practically unchanged. It will take two or more weeks yet for practical results to be known from the most important work. From Savage, Gould & Curry, Best & Belcher and Con. Virginia nothing new comes to hand, although there are those who look for good results in the latter two before long.

NEW YORK, NOV. 25, '97.

There has been a little more buying in mining stocks locally, and prices have reacted somewhat. Of the Colorado stocks, Golden Fleece opened at 62½@63c, and at the close receded to 59c. Portland remained steady at 74c. This company paid a dividend of \$30,000 on November 15. Isabella hovers between 28 and 28½c. The resumption of dividends by the Victor Mining Company has caused some comment, and it now appears as though dividends would be the feature each month for a time at least. On December 1st the company will distribute \$40,000, which includes an extra dividend of 1c. per share, or 4c. in all. It was in March last that the company discontinued dividend.

The Utah stock Horn Silver made a good showing at \$1.60, while Ontario has been bid for on November 18th at \$3 to \$3.50, against prices of \$4.75 to \$6; no sales were recorded.

Quicksilver of California was bid for on the Consolidated Exchange at \$1. The production of the company in October amounted to 400 flasks, against 360 flasks in September. The Standard Consolidated Company's stock sold at \$1.70 @1.75, against \$1.65 two weeks ago. The South Dakota stock, Homestake, was quoted at \$30, as bid on the Consolidated Exchange, but the last sale on the Stock Exchange was at \$40. This company's production in October is officially given as \$186,000, only \$1,000 of which has been in silver. The usual monthly dividend of 25c. a share was recently declared payable on November 26th, amounting to \$31,250.

SALT LAKE CITY, NOV. 29, '97.

In the listed stocks, Geyser-Marion and Galena held their own in fair shape, but were inactive in the way of sales. The same could be said of Mercur, while Mammoth was a favorite and at steadily advancing figures, sales being chronicled at an advance. Northern Light was stationary, while Sunshine was bearing in the bidding. Utah was stronger than usual and closed firm at 67½ cents in the bidding, with offerings at \$1.

The unlisted stocks were more active and attracted more attention at the hands of the brokers. Chloride Point was again in demand, and although there is but a small amount of this stock on the market, it sticks very closely to the 40-cent mark. Swansea made marked advances in the bidding, although there was a disposition to let the stocks out at near the asking quotation. South Swansea received a bid of \$1.27½, but this was subsequently withdrawn to \$1.25, with offerings at \$1.35. Sacramento was firm, but virtually unchanged in the quotations. Dalton was a ready seller at a cent, while little Pittsburg was dropped at 1½ cents, and immediately re-sold at 1½ cents.

The two Swanses attracted considerable attention during the call of the unlisted stocks, the former closing firm at \$1.60 in the bidding with \$2 asked, while the latter changed hands at \$1.25 and at the close had advanced to \$1.35 in the asking. Sacramento held its own at 25 cents in the asking, the bidding declining to 18 cents. Chloride Point continued a favorite buyer and seller being but a little way apart at the close. Hercules marked slight gains in the bidding while the stock was stiffer in the offerings. Dexter was practically unchanged.

ROSSLAND, B. C., NOV. 26, '97.

The mining share market has held rather steady the past few weeks. Good sales have been the order of the day.

Dividends paid to date are as follows: Le Roi, \$625,000; War Eagle (Old Company), \$277,500; Rambler - Cariboo, \$40,000; Reco, \$150,000; Slocan Star, \$350,000; Cariboo, \$156,000; Dominion Development, \$158,158.

The people of the Golden district of East Kootenay have asked for the building of a new Government trunk road to the Spillimachene mine country, at a cost

of about \$20,000. Whether they will get it or not is a question.

Mr. W. G. Bragg, a water works engineer from Toronto, is now preparing estimates for the construction of the proposed water works for the mining town of Ashcroft, in which Mr. Shields and others are largely interested.

Dr. Carroll claims that the shares in the Golden Cache Company held by him, as trustee, are only to be issued for necessary mine development purposes, and also claims that without their issue there is ample capital available for the purpose. He, therefore, declines to issue them, save under the advice of the court.

Returns from the twelfth car of ore lately shipped from the Great Western, of Slocan, owned by the two Friends Company, of Vancouver, have been received. This car consisted of concentrates, and weighed 16 tons, 1,011 lbs. It went 104.5 ounces of silver and 57.1 per cent lead to the ton, the net value being \$922.13, while duty amounted to \$282.73 was also paid.

The thirteenth car is now on the way

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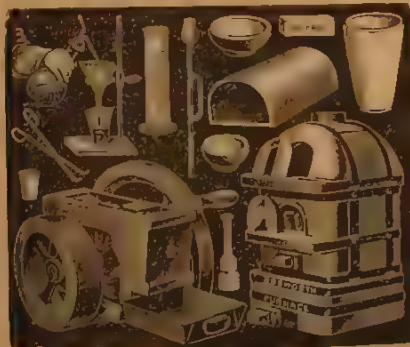
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Brown Duck. ....	--	Magganetta. ....	02 1/2
Cavil. ....	002	Mohawk Action. . .	01 1/2
Knot Armagosa. . .	008	Old Dominion. . .	01 1/2
Gold Bug. ....	008	Public Con. ....	01 1/2
Laguna. ....	50	Hand bit. ....	02
Lucky Star. ....	7 50	Wedgie. ....	02 1/2

## SAN FRANCISCO.

Alpha.....	—	bachquer.....	24
Am Con.....	21	Gould & Curry.....	55
Ames.....	23	Hale & Norcross.....	85
Belcher.....	21	Justice.....	55
Best & Belcher.....	25	Mexican.....	29
Bodie.....	10	Ophir.....	80
Bullion.....	10	Ovman.....	46
Challenge.....	26	Potosi.....	46
Chollar.....	20	Savage.....	20
Chrysolite.....	20	Silver Nevada.....	20
Con. Cal. & Va.....	120	Union Con.....	20
Con New York.....	20	Utah.....	67
Crown Point.....	17	Yellow Jacket.....	81

## SALT LAKE CITY

Alice .....	25	Little Pittsburg..	01%
Ajse .....	25	Lower Mam ..	40
Alliance .....	16	Lucky Hill ..	
Anchor .....	70	Malvern .....	
Bogen .....	—	Mammoth .....	2 05

## COLORADO SPRINGS STOCKS

COLORADO SPRINGS STOCKS			
Alamo .....	03 1/2	Isabella .....	30
Anaconda .....	48	Jawa .....	05 1/2
Argentine Juanita .....	20	Jess Pot .....	28
Bankera .....	00 1/2	Children .....	06
Ben Hur .....	02 1/2	Mollie Gibson .....	26
C & N .....	00 1/2	Mount Rose .....	08
C & C Manitou .....	02	Pharmacist .....	09 1/2
Creole & C .....	04	Portland .....	78
C C Consolidated .....	09	Peoples .....	02 1/2
Garfield Grosse .....	04	Sacramento .....	02
Golden Fleets .....	30	Star of the West .....	02 1/2
Gold & Glebe .....	00 1/2	Union Gold .....	21
Grand Standard .....	00 1/2	Virginia M .....	02 1/2
Inley .....	300	Work .....	06
Ironhead .....	30 1/2		

ROSSLAND, BRITISH COLUMBIA.

Libertia	06	Josia Mac	18
B. C. Gold King	07	Josie	24
Heaver	10	Jumbo	76
Big Three	10	Knight Templar	76
Bluebird	08	Kootenay, London	85
		L. Col	85
Butte	014	Lilly May	19
Caladonia Con	05	Viabel	15
California	06	Mayflower	15
Can. R. & D.	05	Monte	15
Cent. Queen	05	Monte Crest	15
Centre Star	05	Morning Star	09
Colonia	24	Mug cup	10
Commanier	18	New Egg	07
D. L. 2	05	Northen Delta	10
Della Colla	02	Novelty	09
Delyaware	17	O. K.	09
Eastern Star	20	Palo-Mto	05
Enterprise	20	Phonix	05
	03	P. Roman	05
Kureka Con	05	R. I. Tree	15
Kevning Star	08	Red Eagle	08
Georgia	10	Red Mount. View	19
Golden Drip	15	Red Point	06
	15	Road's H. Mest's	16
Good Hope	03	Russland, Red Mt.	20
Grand Price	03	S. Elmo	09
Great Western	08	S. Paul	09
Hattie Brown		Silver bell	04
Helen		Silverline	04
High Ore	04	San Cross & W. Con	20
Imperial	10	Virginia	12
Iron Horse	20	War Eagle Con	10
Island	05	West's Rol	15
I. X. Hawk	10	White Bear	15

## DENVER STOCK REPORT.

Alena .....	037	Elkton .....	02
Alamo .....	02	Barkley .....	09
Anacosta .....	02	Goldfield-Frouge .....	04
Aracida .....	006	Golden Fleece .....	25
" Consolidated .....	017	Goldsmith .....	008
Argentine Jun- .....	27	Gold Standard .....	02
Bakersburg, C. Holl .....	02	Imperial .....	02
Bakers .....	04	Iron Clad .....	28
Ben Hur .....	02	Jack Pot .....	04
Ben Lee .....	04	Jefferson .....	08
Benton & C. C. .....	012	Mollie Gibson .....	05
Chimbaruco .....	002	New Zealand .....	65
" C. N. .....	001	People .....	01
Colo. C. & M. .....	01	Pharmacist .....	01
C. C. Con .....	00		

HELENA, MONTANA

Am Den & M Co..	1 00	Helema & Frisco	8 00
Bald Butte.....	2 50	Iron Mountain...	

## BI-Metallic ...

Combination ..	—	Ontario .....	—
Con T & P 'en's..	35	Yellowstone.....	11
Diamond Hill ..	—		

## MEXICO

[illegible]

NOTE: The above Mexican stocks are figured on the basis of Mexican silver.



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 Successor to San Francisco Tool Co.'s Machine & Mill'g Dept.  
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 Briggs' 2-Stamp Triple-Discharge Quartz Mill, of Latest Improved pattern, Rock Breakers, Ore Feeders, Concentrators, Engines and Rollers, Hoisting Rigs to be operated by Horse, Steam Power or any other motor, Ore Cars and Ore Buckets, Cornish and Jack-head Pumps, Triple-Acting Pumps, Centrifugal Sand and Gravel Pumps, Wooden Tanks and Pumps for the Cyanide Process, Pipe and Gate Valves, Link Chain Elevators for elevating and conveying all kinds of material. Estimates as to cost of machinery and its erection furnished upon application. Write for Catalogue and Prices.

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WIRE FENCING ALL KINDS

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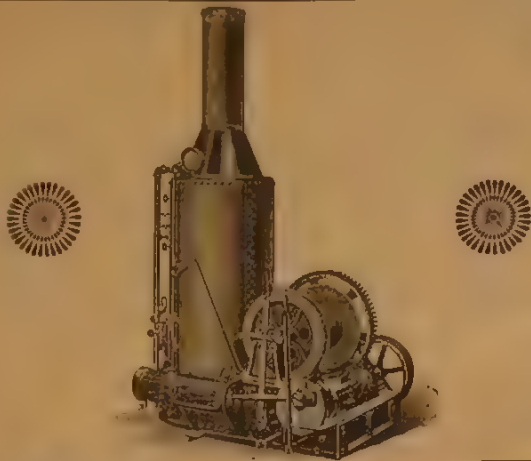


## INCORPORATED MINES PAYING DIVIDENDS.

NAMES OF MINES	LOCATION	No. of Shares	Capital Stock	Par Value	Amount of last Dividend	Date of Last Dividend	Total Amount Paid in Dividends	Kind of Mineral Produced
Aetna Cons.	California	100,000	\$ 500,000	\$ 5	\$ 10	Sept 1897	\$ 110,000	G
Adams	Colorado	150,000	1,500,000	10	04	October 1895	693,500	S, L, C.
Alaska, Treadwell	Alaska	200,000	5,000,000	25	35 1/2	October, 1897	3,250,000	G.
Alaska Mexican	Alaska	200,000	1,000,000	5	10	Oct., 1897	297,031	G.
Alce	Montana	400,000	10,000,000	25	03	Oct 1897	1,055,000	G. S.
Anaconda	Montana	1,200,000	80,000,000	25	1 25	May 1897	3,750,000	G.
Anchoria Leland	Colorado	800,000	800,000	1	01	Oct 1897	81,000	G.
American Gold	Colorado	800,000	3,000,000	10	02	Aug 1897	273,000	G. M. L.
Atlantic	Michigan	40,000	1,000,000	25	1 00	Feb. 1897	740,000	G.
Bald Butte	Montana	250,000	250,000	1	03	Sept 1897	512,500	G. S.
Bangkok C-Bell	Colorado	600,000	600,000	1	01	July 1898	107,510	S. L. C.
Big Six	Colorado	500,000	500,000	1	00 1/2	April 1897	5,000	G. S.
Boston & Montana	Montana	150,000	3,750,000	25	3 00	Aug 1897	6,275,000	G, C, S.
Bullion Beck and Champion	Utah	100,000	1,000,000	10	50	Mar 1897	2,465,000	G. S.
Bunker Hill and S	Idaho	300,000	3,000,000	10	05	Oct 1897	324,000	S. L.
Cariboo	British Col.	800,000	800,000	1	02	May 1897	150,965	G.
C. O. D.	Colorado	600,000	600,000	1	01	March 1896	25,000	G.
Calumet & Hecla	Michigan	10,000	2,500,000	25	10 00	Oct. 1897	50,850,000	C.
Centennial Eureka	Utah	30,000	1,500,000	50	1 00	Mar 1897	2,010,000	S. L.
Central Lead	Missouri	4,000	400,000	100	1 00	Oct 1897	18,000	L.
Charleston	South Car	10,000	1,000,000	100	1 00	Feb 1897	150,000	G.
Champion	California	34,000	340,000	10	25	Aug 1897	274,200	G.
Consolidated, California and Virginia	Nevada	216,000	21,600,000	100	25	March 1895	3,592,800	G. S.
Copper Queen Consolidated	Arizona	200,000	2,000,000	10	25	June 1895	1,910,000	C.
Crescent	Utah	24,000	800,000	25		July 1897	280,000	G.
Daly	Utah	150,000	3,000,000	20	25	Mar 1897	2,925,000	S. L.
Dendwood Terra	Dakota	200,000	5,000,000	25	40	June 1897	1,320,000	G.
De Lamar	Idaho	400,000	2,000,000	5	25	Jan 1897	2,250,100	S. L.
Della S.	Colorado	1,000,000	1,000,000	1	10	Jan 1897	60,000	G.
Doe Run	Missouri	5,000	500,000	100	50	October 1897		L.
Dalton and Lark	Utah	2,500,000	2,500,000	1	00 1/2	August 1896	87,500	S. L.
Elkton Consolidated	Colorado	1,250,000	1,250,000	1	03	Sept 1897	361,960	G. S.
El Paso	Colorado	850,000	850,000	1	01	Aug 1897	5,393	G. S.
Florence	Montana	500,000	2,500,000	5	01	May 1897	132,530	G.
Galena	Utah	100,000	1,000,000	10	05	Jan. 1897	71,000	G, S, L
Garfield Grouse	Colorado	1,200,000	1,200,000	1	01	Feb. 1897	24,000	G.
Geyser-Marion	Utah	300,000	1,500,000	5	03	Nov 1897	54,000	G.
Golden Eagle	Colorado	1,000,000	1,000,000	1	01	Sep. 1896	10,000	G.
Golden Fleece	Colorado	800,000	800,000	1	01	Feb. 1897	569,179	G, S.
Gold Coin	Colorado	200,000	1,000,000	5	05	Aug 1897	150,000	G. S.
Gold and Globe	Colorado	750,000	750,000	1	3-10	July 1897	51,625	G.
Hecla Consolidated	Montana	80,000	1,600,000	50	60	Feb 1897	2,175,000	G, L, C.
Helena & Frisco	Idaho	500,000	2,500,000	5	04	August 1896	475,000	S. L.
Highland	S. Dakota	100,000	10,000,000	100	20	Oct 1897	3,424,918	G.
Holy Terror	S. Dakota	300,000	300,000	1	03	Sept 1897	18,000	G.
Homestake	Dakota	125,000	12,500,000	100	25	Oct. 1897	6,431,250	G.
Hope	Montana	100,000	1,000,000	10	10	Nov 1897	732,252	S.
Horn Silver	Utah	400,000	10,000,000	25	12 1/2	January 1896	5,080,000	S. L.
Idaho	Brit. Col.	500,000	500,000	1	05	Mar 1887	152,000	G.
Iowa	Colorado	1,000,000	1,000,000	1	00 1/2	Oct 1897	65,000	G.
Iron Mountain	Montana	500,000	5,000,000	10	01	Sept 1897	497,500	S.
Isabella	Colorado	2,250,000	225,000	100	00 1/2	June 1897	270,000	G.
Kearnsarge	Michigan	40,000	1,000,000	25	10	Aug 1897	160,000	C.
Last Chance	Brit. Col.	500,000	500,000	1	04	Jan 1897	42,000	S. L.
Le Roi	British Col	500,000	2,500,000	5	10	Oct 1897	625,000	G.
Minnesota	Minnesota	185,000	18,500,000	100	1 50	July 1896	3,240,000	L.
Montana Ore Purchasing	Montana	40,000	1,000,000	25	01	October 1897	640,000	G.
Moose	Colorado	800,000	800,000	1	01	January 1896	186,000	G.
Morning Star	California	2,400	240,000	100	8 00	Sept. 1897	558,000	G.
Mt. Rosa	Colorado	1,000,000	1,000,000	1	00 1/2	Oct. 1896	30,000	G.
Mercur	Utah	200,000	5,000,000	25	12 1/2	Oct 1897	825,000	G.
Mammoth	Utah	400,000	10,000,000	25	05	Nov. 1896	1,150,000	G, S, C.
Moon Anchor Gold	Colorado	800,000	800,000	1	02 1/2	Nov 1897	63,000	G.
New Elkhorn	Colorado	300,000	1,500,000	5	24	Sep. 1896	72,000	G.
New York & Hon. Rosario	Central A.	150,000	1,500,000	10	10	Oct. 1897	832,500	S. G.
Napa	California	100,000	700,000	7	20	Oct 1897	870,000	Q.
New Idria Quicksilver	California	100,000	500,000	5	10	Sept 1897	20,000	Q.
Ontario	Utah	150,000	15,000,000	100	10	June 1897	13,445,000	S. L.
Osecola	Michigan	50,000	1,250,000	25	1 00	June 1897	2,172,500	C.
Parrot	Montana	230,000	2,300,000	10	08	June 1897	1,658,122	C.
Pennsylvania Consolidated	California	51,500	5,150,000	10	05	Sept 1897	20,750	G.
Portland	Colorado	3,000,000	3,000,000	1	01	Oct 1897	1,163,000	G. S.
Princess	Colorado	1,000,000	1,000,000	1	00 1/2	Feb 1897	45,000	G.
Quincy	Idaho	100,000	2,500,000	25	4 00	August 1897	9,470,000	O.
Rambler-Cariboo	Brit. Col	1,000,000	1,000,000	1	02	April 1897	40,000	G.
Reco	Brit. Col	1,000,000	1,000,000	1	50	May 1897	187,500	S. L.
Sacramento	Utah	1,000,000	5,000,000	5	00 1/2	March 1897	22,000	G.
Small Hopes Consolidated	Colorado	250,000	5,000,000	20	10	Mar 1896	3,275,000	S.
South Swansea	Utah	150,000	150,000	1	05	Oct 1897	50,900	S. L.
Standard	California	200,000	20,000,000	100	10	Sept 1897	3,767,868	G. S.
St. Joseph	Missouri	250,000	2,500,000	10	15	Oct 1897	24,000	L.
Silver King	Utah	150,000	3,000,000	20	25	October 1897	1,237,500	S, L, G.
Silver Star	Brit. Col.	2,000,000	1,000,000	0 50	05	Mar 1897	350,000	G.
Smuggler Union	Colorado	50,000	5,000,000	100	1 00	Oct 1896	150,000	G. S.
Swansea	Utah	100,000	500,000	5	05	Oct 1897	61,500	S. L.
Tom Boy	Colorado	200,000	2,000,000	10	20	March 1896	410,000	G.
Tamarack	Michigan	80,000	1,500,000	25	3 00	June 1897	4,950,000	C.
Union	Colorado	1,250,000	1,250,000	1	01	June 1896	73,000	S.
United Verde	Arizona	300,000	3,000,000	10	25	December 1893	562,500	C.
Utah	Utah	100,000	1,000,000	10	02	Feb 1897	175,000	G, S.
Utah Consolidated	Utah	80,000	150,000	5	02	Sept 1896	3,000	S. L.
Victor	Colorado	200,000	1,000,000	5	10	March 1897	765,000	G.
Western Mine Enterprise	Montana	500,000	500,000	1	10	Mar 1897	12 0-0	G.
War Eagle	British Col.	500,000	500,000	1	08	October 1896	187,000	G.

S, Silver. G, Gold L, Lead. C, Copper. Q, Quicksilver. I, Iron. B, Borax.





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*Feeds.*—It has all feeds in daily use with simple movements of lever.

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There is no comparison between this lathe and the old style or common lathe. Quick work, rapid changes, satisfactory results.

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IN USE IN

California  
Oregon  
Washington  
Nevada  
Arizona Territory  
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Patented  
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We guarantee these machines to handle an average of ten tons per 24 hours, and to do cleaner and closer work than any Other CONCENTRATOR in use.

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Patented



This illustration shows the edge hanging outwardly as it passes over the pulley. This relieves the strain from the top and bottom of the edge by directing the strain automatically to the inside face surface of the edge. Heretofore all belts have been so constructed that when they pass over the pulleys or rolls, a direct strain comes upon the top or at the base of the edges, causing the edges to break away from the body of the belts in a very short time. We avoid this *typical defect* by our Spadone's *Curved Edge*. Belts made to fit any machine 4 1/2 and 6 feet wide. Prices and samples on application.

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CONCENTRATORS,  
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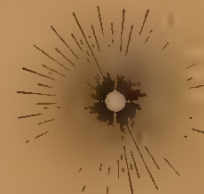
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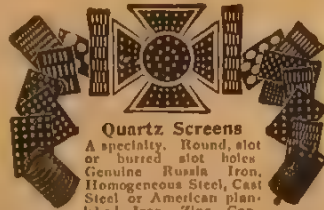
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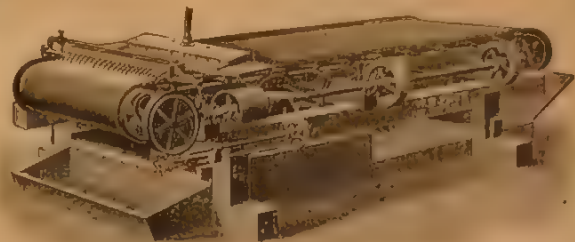
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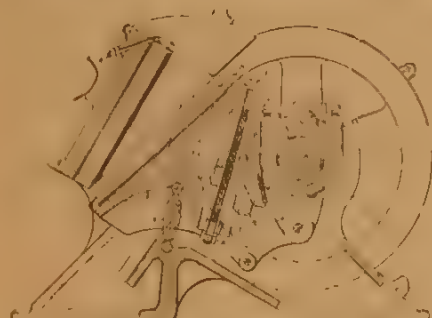
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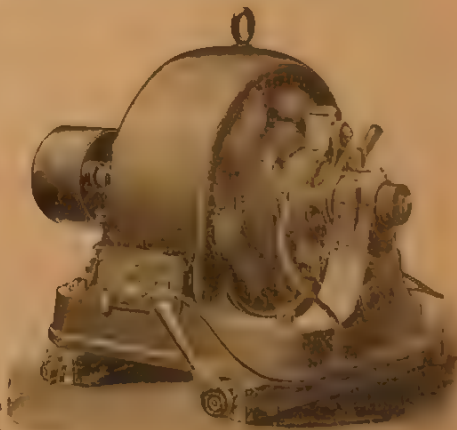
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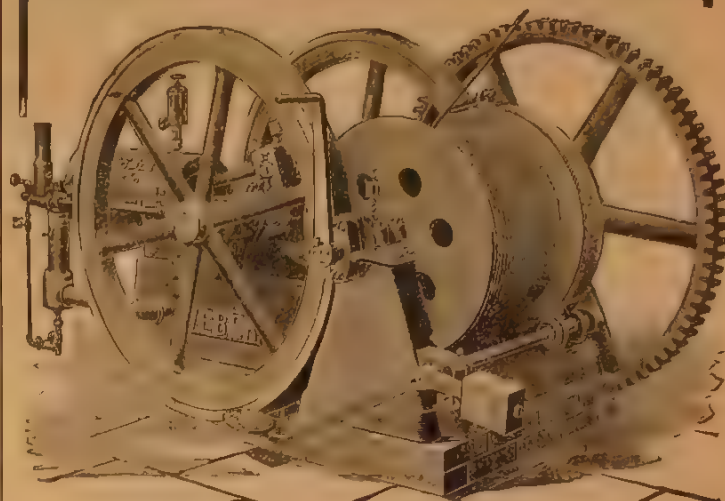
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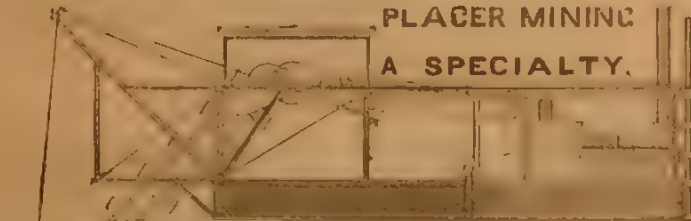
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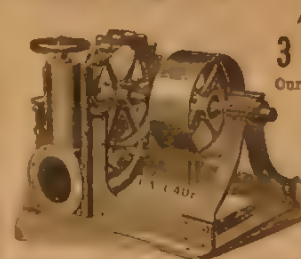
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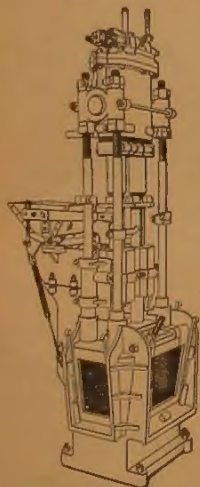
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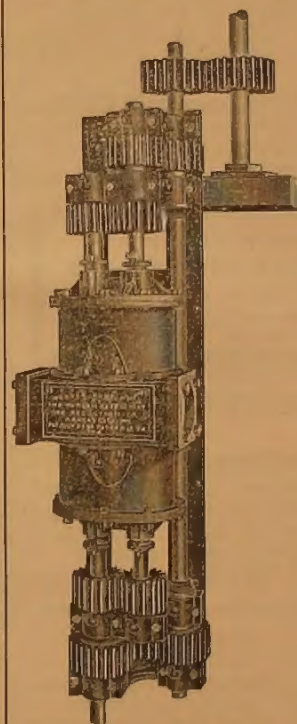
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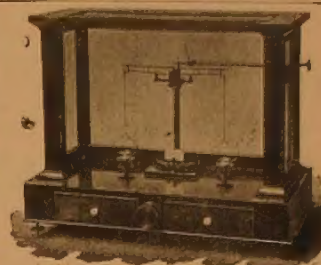


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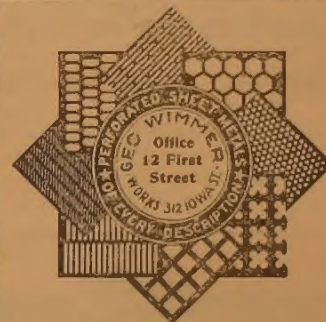
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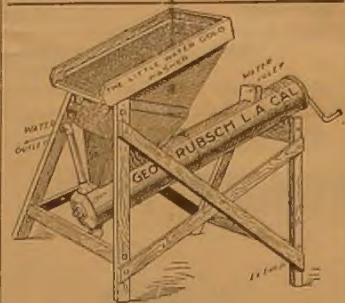
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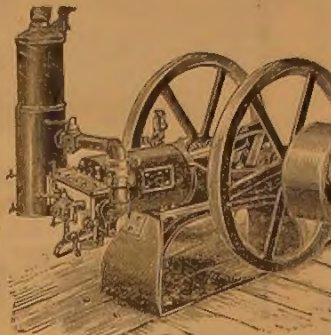
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Dom. Coal Oil.....	40	"	7 1/2	"	12 1/2 c.	.88 1/2
Gasoline.....	74	"	8 1/2	"	15c.	1.11 1/4
City Gas.....	1000	feet,			2.00	

We manufacture all sizes from two-horse power up, and will guarantee that our Engines will run cheaper and are more simple in construction, have fewer parts and hence are more durable than any other Gas Engines on the market. Seeing is believing; don't take our word for it, but come and investigate for yourselves. You can always see one in operation at our works. We will be pleased to see you and will at all times take pleasure in showing them up. Our Engines are specially adapted for running well and mining machinery—in fact, for any kind of power desired, we are the pioneers and first inventors of Crude Oil and Distillate Engines. WE ALWAYS LEAD AND NEVER FOLLOW. Send for Catalogue and Price List of the only genuine Crude Oil and Distillate Engine made.

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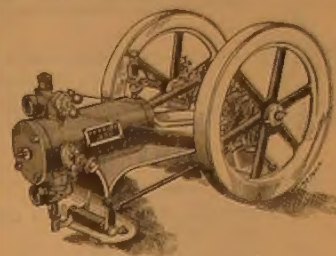
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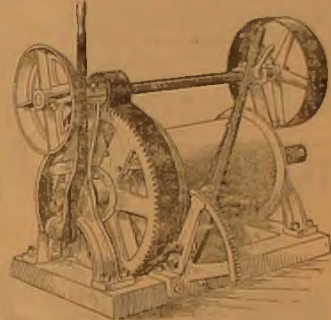
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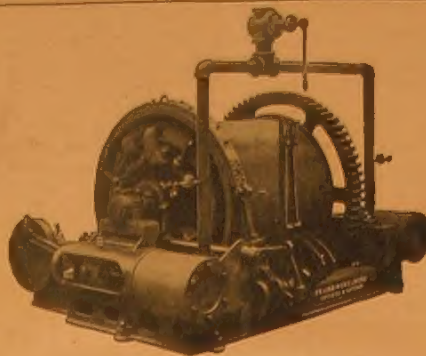
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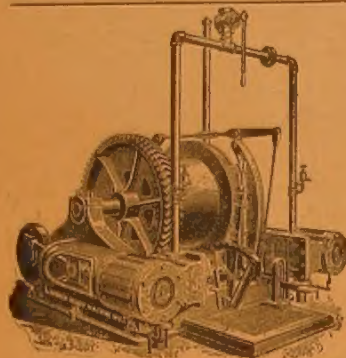
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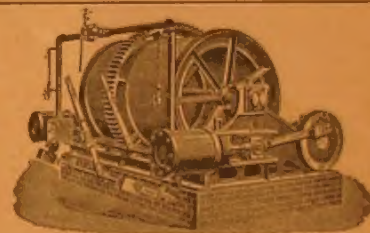
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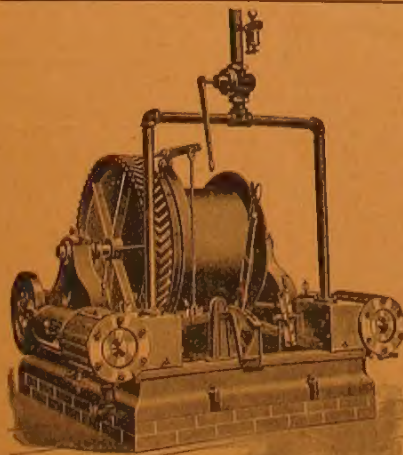
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